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CONTENTS

CHAPTER 1

THE HOTEL ELECTRA

When Mike Adams wrote code, he put the back of his laptop on his legs and looked down at the screen. His fingers hung over the edge of his keyboard as if his wrists were broken. He looked like a happy astronaut writing in space, whimsically violating the rules of conventional physics. His brilliance reflected this independence as he regularly found his way through challenges with a grace matched by only a handful of engineers in the world. At twenty-nine years old, he was young enough not to have repetitive stress injuries to his body, but watching him work in comical contortions across various sofas and couches made it hard to believe this would last. Behind his thick glasses and fuzzy beard resided an iron will for solving problems. He often worked long hours immune to hunger or other physical discomforts until his understanding reached his level of satisfaction. His proficiency was all the more impressive because he'd never read a book on computer science. He was self-taught, brilliant, collaborative, and, at times, hysterically funny. And the best part is he worked on my team.

There were four of us hard at work in the lobby of the ominously named Hotel Electra in Athens, Greece. As is the case with many other famous Greek characters, Electra's tale is a delightful mix of revenge and matricide. According to Sophocles, she plotted with her brother to have her mother and stepfather killed to avenge the murder of her father. Just imagine how fun holiday dinner

must have been at their house. Sophocles' tale is perhaps the inspiration for Shakespeare's *Hamlet*, but no one really knows. For me, whenever our work in Athens turned sour, I couldn't help but think of Elektra and all the things that go wrong with families and teams. I kept this to myself, of course: leaders should never joke about mutiny. Our team had been getting along well, and I didn't want anything, mythological or practical, to get in our way.

We were called Team Social, one of many teams of programmers working on a website called WordPress.com. This singular website is where millions of popular blogs and other websites live, and it's the fifteenth most trafficked website on earth. My team's job was simple: invent things to make blogging and reading blogs easier. If you watched us work in that hotel lobby, you'd have discovered many unorthodox and courageous methods in how we worked. Actually, that's not true. There are many unorthodox methods, but in watching us work, you'd be unlikely to notice them. With a superficial glance, you'd assume we weren't working at all.

We sat in a small lounge across from the hotel bar, tucked around a blind corner of the large lobby. It's as if the architect had been offered a bonus by the bartenders to make the bar hard to find, and he succeeded. We commandeered a set of puffy red chairs

and couches, shaping them into a semicircle of web development, a veritable fortress of geekdom. The yellow walls behind us had small prints of late Renaissance family portrait paintings in thick wood frames. They were obscured by the glare from gold light fixtures, each tilting haplessly away from each other, a glare that made our laptops harder to see. The shared glass coffee table between us was too low, meant for coffee cups and bags of souvenirs rather than use as a makeshift desk for a team of engineers. To provision for power, we unplugged one of the floor lamps in the corner, an act, we believe, has made the sole bartender, a portly middle-aged Russian man, refuse to serve us despite our enthusiasm for overpriced, hand-delivered, umbrella-laden cocktails.

While I'm a decade older than the rest of the team, we all look to be in our mid- to late twenties. To any observer, it would seem we are simply spoiled young travelers choosing to play with our laptops and gadgets in a horror show of hotel discomfort and decor confusion rather than enjoying the glorious tourism opportunities Athens provides. Had we stood in the lobby carving ice sculptures with chainsaws, the work itself would provide a spectacle for observers. Hotel visitors passing through would have stopped and stared, asking questions, intently curious about what we were doing and how it was done.

But all of our work was invisible, hidden inside the glowing screens of our laptops. What no one could possibly know is at the click of a button from any of our web browsers, we could launch features that would instantly have an impact on millions of people around the world. Yet for anyone sitting nearby, for all they knew we were playing solitaire. An amazing thing about our digital age is that the person next to you at Starbucks might just be hacking into a Swiss bank or launching multiwarhead nuclear missiles continents away. Or maybe he's just on Facebook. You can't tell the difference unless you're nosy enough to peek over his shoulder.

Hidden behind our ordinary appearance were unusual facts. Although we were coworkers, our sitting together was a rare

occurrence. Most of the time we worked entirely online. This meeting in Athens is only the second time we have all worked in the same room. We all met once before at Seaside, Florida, where the annual company meeting was held a few weeks prior. To convene at the Elektra, I'd flown in from Seattle. Mike Adams was from LA. Beau Lebens, who I'd bet moonlighted as a secret agent, was born in Australia but lived in San Francisco. Andy Peatling, a charmingly smart British programmer, split his time between Canada and Ireland.

The very idea of working remotely seems strange to most people until they consider how much time at traditional workplaces is spent working purely through computers. If 50 percent of your interaction with coworkers is online, perhaps through e-mail and web browsers, you're not far from what WordPress.com does. The difference is that work at WordPress.com is done primarily, often entirely, online. Some people work together for months without ever being on the same continent. Teams are allowed to travel to meet a few times a year to recharge the intangibles that technology can't capture, which explains our Athens trip. We specifically chose Greece because our boss suggested it, and we quickly said yes before he changed his mind. But the rest of the year we worked online from wherever in the world each of us happened to be.

Since location is irrelevant, Automattic, the company that runs WordPress.com, can hire the best talent in the world, wherever they are. This indifference to physical location is a fundamental assumption of how the company, founded in 2005, is organized and "managed." I put *managed* in quotes because, as I explain later, we are not managed at all in any conventional business sense. Initially the company was entirely flat, with all employees reporting directly to the company founder, Matt Mullenweg. In 2010 he and Toni Schneider, the CEO, decided things were too chaotic, even for them, and considered a better way: they split the company, which by that time had fifty employees, into eight teams. Every team had one lead, the first hierarchy in company history.

The lead role was loosely defined, and it was left to every team to figure it out for themselves. From Matt and Toni's perspective, running simultaneous experiments was a good thing. They could more quickly learn which things might work and which didn't. As an additional experiment, as if all this wasn't crazy enough, they picked one person from outside the company to be one of the leads. That person was me. This meet-up in Athens was historic for the company: it was the first time this new concept called a team had met together in what would be known as a team meet-up.

I'd only been at the company for ten weeks and didn't know my team well, but clearly they were talented. Mike Adams was the eighth employee at the company. He was on track for a PhD in quantum computing, a subject that I won't even try to explain, but his informal involvement with WordPress had grown into a passion. When Matt offered him a job, he left quantum computing behind and has thrived ever since. Beau Lebens, the most versatile programmer on the team, had worked at other companies, experience most coworkers at WordPress.com didn't have. His range of abilities beyond programming, from Krav Maga (the Israeli self-defense technique) to survival training, explains why he'd be near the top of my list for people to share a foxhole with. Despite his many talents, he seemed good-natured, humble, and cool-headed. Andy Peatling complemented the team perfectly: he excelled at the kinds of programming that Beau and Mike didn't, mainly the user-facing parts of software. He was fast at trying new things out, a skill all creative teams need. The three of them together formed a young, strong, confident team, regardless of who led them.

From Mullenweg's brilliant, or possibly mad, perspective, what made me interesting for the job was my experience leading teams, combined with my complete inexperience working anywhere like WordPress.com. Whereas the culture of WordPress.com, a company of sixty people at the time, was highly autonomous and rooted in open source culture, I'd spent my career at Microsoft and consulting with other large Fortune 500 organizations. The very idea

of teams was a dramatic change for the company but not for me. There was genius here: match people together who must depend on each other to survive, only for different reasons. Mullenweg believed I could exemplify how teams should function, and the company could teach me a different way to think and work.

But we also agreed there were no guarantees: my hiring could be a disaster. What if the differences were too great? What if I failed to be productive remotely? Or the culture at WordPress.com rejected the entire idea of leads and teams? There were many big questions. But I confess the uncertainty was central to why I wanted the job. Whatever happened, there'd be a good story to tell, and that story starts with my first day.

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Mindfire: Big Iideas for Curious Minds
By Scott Berkun

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GET **READY**

WARNING:
THREE IMPORTANT THINGS

Welcome to this book. I'm glad you're here. Before the book begins, there are three things you need to know:

1. These essays have been published elsewhere before. Do not panic.

2. If you are so inclined, you can find them for free by poking around on scottberkun.com or elsewhere online. I recommend you don't do that. Here's why.

If you're new to my work, this book serves as a fantastic introduction to a decade of effort. All the essays have been edited, washed, organized, re-organized, washed again, stared at crossly, then pruned, polished and curated for your pleasure. It's the best possible edition of these works.

If you've previously enjoyed my work online, please pay a few bucks in return for the value my free work has provided. Karma is good for you and for me. You'll enjoy rereading past essays, or ones you missed, in this simple, convenient, beautiful book.

3. This book is self-published. I've had an excellent relationship with O'Reilly Media, the publisher of my first three books. But I know I want to publish books in the future that no publisher in its right mind would release. Therefore, I must learn to do it myself. What you have in your hands is a purely independent production.

There. You've been lovingly warned. Now the preface patiently awaits your attention.

PREFACE:
PLEASE ACTIVATE YOUR MIND

These essays were made to challenge minds. I'll be thrilled if you like what I say, but if you don't, that's fine, provided I get you thinking.

Most days we avoid big thoughts. We stay busy with small things. Despite our wishes, we know real thinking takes us places we may not be prepared for. You may finish this book with questions you wish I'd answered instead of the ones you found. But that list might be more valuable to you than you think.

As a collection of previously published works, written independently, you should feel free to read them in the fashion you choose. They were selected for this book because they fit the theme of intelligent provocation, and ordered, after much experimentation, in a simple and straightforward way. But if you disagree, your vote trumps mine; skip sections, read the essays in reverse order, have a beer after each paragraph, any means you choose is fine with me.

If you find anything you like here, please join me online at **www.scottberkun.com** where the quest for wisdom continues.

Scott Berkun
9/20/2011

PART ONE
GASOLINE

01

THE CULT OF BUSY

When I was young I thought busy people were more important than everyone else. Otherwise, why would they be so busy? I had busy bosses and busy parents, and I assumed they must have important things to do. It seemed an easy way to decide who mattered and who didn't. The busy must matter more and the lazy mattered less. This is the cult of busy: by always doing something, we assume you must be important or successful.

The cult of busy explains the behavior of many people. By appearing busy, others bother them less, and simultaneously believe they're doing well. It's quite a trick.

I believe the opposite to be true. Or nearly the opposite. Here's why: time is the singular measure of life. It's one of the few things you cannot get more of. Knowing how to spend it well is the most important skill you can have.

The person who gets a job done in one hour seems less busy than the guy who can only do it in five. How busy a person seems is not necessarily indicative of the quality of their results. Someone who is better at something might very well seem less busy, simply because they are more effective. Results matter more than the time spent achieving them.

Being in demand can have good and bad causes. Someone with a line of people waiting to talk to them outside their office door seems busy, and therefore important. But somehow the clerk running the slowest supermarket checkout line in the universe isn't praised in the same way; it means they're ineffective. People who are at the center of everything aren't necessarily good at what they do (although they might be). The bar of being busy falls far below the bar of being good.

The compulsion to save time may lead nowhere. If you're always cutting corners to save time, when exactly are you using all that time you've saved? There is this illusion that, someday, you'll get back all that time you've squirreled away in one big chunk. Time doesn't work this way. For most Americans, our time savings goes into watching television. That's where all the time savings we think we get actually goes.

The phrase "I don't have time for" should never be said. We all get the same amount of time every day. If you can't do something, it's not about the quantity of time. It's really about how important the task is to you. I'm sure that if you were having a heart attack, you'd magically find time to go to the hospital. That time would come from something else you'd planned to do, but now seems less important. This is how time works all the time. What people really mean when they say "I don't have time" is that this particular thing is not important enough to earn their time. It's a polite way to tell people they're not *worthy*.

This means that people who are always busy are time poor. They have a time shortage. They have time debt. They are either trying to do too much, or they aren't doing what they're doing very well. They are failing to be effective with their time, or they don't know what they're trying to effect, so they scramble at trying to optimize for everything, which leads to optimizing nothing.

People who truly have control over time always have some in their pocket to give to someone in need. A sense of priorities drives their use of time and it can shift away from the ordinary work that's easy to justify, in favor of the more ethereal, deeper things that are harder to justify. They protect their time from trivia and idiocy; these people are time rich. They provide themselves with a surplus of time. They might seem to idle, or relax more often than the rest, but that just might be a sign of their mastery, not their incompetence.

I deliberately try not to fill my calendar. I choose not to say yes to everything. Doing so would make me too busy and less effective at achieving my goals. I always want to have some margin of time in reserve, time I'm free to spend in any way I choose, including doing almost nothing at all. I'm free to take detours. I'm open to serendipity. Some of the best thinkers throughout history had some of their best thoughts while going for walks, playing cards with friends—little things that aren't considered the hallmarks of busy people. It's the ability to pause, to reflect, and relax, to let the mind wander, that's perhaps the true sign of time mastery. When a mind returns it is sharper, more efficient, and perhaps most important, calmer than before.

02

WANTS VS BELIEFS

A funny thing about the human mind is it tends to believe what it wants to believe. We allow what we want to have happen distort our reasoning on how likely it is to happen, so we obsess about things that scare us, even if they are unlikely. We worry about snakes, or getting on airplanes, when the real threats to longevity are cheeseburgers, chocolate shakes and long hours lounging on the couch.

A telling example is how when we think about the future, we want it to be grand. We imagine dramatic positive changes like personal jetpacks and transporter beams, ignoring how every novel and science fiction film of the last 50 years failed to capture the essence of what changes over time and what does not. Simply wanting a cleaner, smarter world for our children doesn't have any impact on how likely it is to happen.

I believe the future, in many ways, will be boring. Much of daily life will be the same as it is now. I don't want this to be the case, but I believe it in spite of my wantings. When I tell people this, they are disappointed. Because I've written books about innovation they expect I'll have great faith in how amazing life will be in the decades to come. This is wrong. I'd love new and better things to happen, but I don't let that influence what I

think is likely.

One reason I believe this is the history of ideas. The difference between ideas that change the world, and those that remain on the drawing board, includes large quantities of chance and circumstance. There's no grand reason we have 12 months in a year instead of 15, or 60 seconds in a minute instead of 100. They're just numbers someone made up. Politics, self-interest and conflicting beliefs influence all important decisions made today, just as they did in the past and will in the future. Why the U.S. is one of a handful of countries in the world that doesn't use the metric system has more to do with circumstance than good reason.

Ideas like the golden rule, or pay it forward, may never become popular. Not because people don't want them to be adopted, but because wanting something to be popular can have little bearing on how popular it becomes. And as much as we might want the future to be different in this regard, it's insufficient for believing it will happen.

A kind of wisdom rises when we strip away what we want or don't want from our view of the world. Then we're free to see things more clearly. There are three ways to do this:

- Acknowledge something you hope doesn't happen will happen anyway (death)

- Want something even if it's improbable (developing superpowers as you age)

- Be open to data that disproves the theory you want.

Take a moment to list your beliefs. If you're careful, you'll discover wants lurking inside. It's good to want things and fight for them, but misplaced belief is not the way to wisdom.

03

HOW TO BE A
FREE THINKER

In the same way a man can be chained to an oak tree, a mind can be chained to an assumption, a religion, or any idea. But the idea, like the tree, should not be blamed. It is inanimate and is good or bad only in how it is used. Instead it's the chain that must be questioned, and the motivations of the people using them. Each mind is unique for its infinite ideas and can be used to think about anything in a thousand ways. Any act that confines a mind to a singular way of thinking cannot be good. And yet all communities, from families, to schools, to gangs, have ideas members are expected to adopt without question. This doesn't make them evil, but it doesn't make them liberators either.

Like the rules to a new board game, we absorb these ideas with our minds at half-power, since our goal is to learn and follow. Traditional education mostly teaches us to copy, to memorize, and apply other people's theories. What does this train us for other than performing these thoughtless behaviors throughout our lives?

And the things that are considered taboo in our societies, acts

that violate traditions, are banned without parents, teachers or leaders understanding why. Why is being seen in underwear embarrassing, but in a bathing suit is not? Why are nipples and flesh forbidden to see, when everyone has them? Why are alcohol, nicotine and Prozac legal, but marijuana and Absinthe criminal? It's un-free thinking, this accepting of an idea simply because someone said so. If an idea is good, it will thrive in fair debate and discussion, and if it's weak, it will wither away.

Wisdom demands two questions: Why do we believe what we believe? How do we know what we know? They should be stamped on every schoolbook and posted in every meeting place and home to encourage independent thought. It should be tattooed on the forehead of anyone arrogant enough to dictate orders for others to follow.

When a child asks "why," to every answer, the game often ends with the parent embarrassing the child: "Stop being silly," they say. But they are hiding their own embarrassment. It's harder for them to say "I don't know" despite its truth. Why not be proud of the child's inquisitive mind and hope they ask questions their entire lives? We all know less than we think, and learning it starts by admitting ignorance, and asking more questions, not fewer.

Questions help us discover the ideas that bind us: chains forced upon us as children, before we found the will to refuse and question. Chains we used to bound ourselves, to fit in at school, at work, or with friends. Free thinkers forever seek to acknowledge, understand and disprove their assumptions. They hunger to discover better ideas, wiser opinions, and more worthy faiths. They are willing to abandon ideas they've held dearly, seeking when they learn an important belief has been held for the wrong reasons.

When I first ate Ethiopian food, I asked three times "Are you sure it's ok to eat with my hands?"

It didn't occur to me that a) they're *my* hands, b) it's *my* mouth, and c) I'm paying for the food. Shouldn't I do what I please? For all of America's freedoms, we're still under the tyranny of silverware. When I went to India, I was scolded for eating with my left hand. At a fancy French restaurant, I got dirty looks for eating with the wrong fork. Travel makes clear how arbitrary the rules we defend are. We often have trivial reasons for being offended or judging others.

The first challenge: Be wrong. It's ok.

Brace yourself: you're wrong—much of the time. I'm wrong too and some of this essay will be wrong (except for this sentence). Even if you're brilliant, successful, happy and loved, you're wrong and ignorant more than you realize. It's not your fault. None of our theories are entirely true. This is good. If we had all the answers, progress would be impossible. Look back 100, 50, or even 5 years. Consider the smartest people of those times: weren't they misguided, compared to what we know now? Governments, religions, cultures and traditions all change, despite what they say. Each evolves. Traditions do have value, but ask yourself: who decides what to keep and what to toss? Why did they make these decisions? There are stories of free-thinking and change hiding in every tradition.

What beliefs have you held and discarded? If you have kept the same beliefs and theories your entire life, then you haven't been paying attention. To be wiser, smarter, and more experienced than you were a decade ago means you've changed. It's good to think differently about life than you did before; it's a sign future progress is possible. If you pride yourself on rigid consistency, you bury intelligence under pretense. Only when you're free from allegiance to a specific idea, and put faith in your ability to learn, can progress happen.

The second challenge: other people

Children survive by conformity. By recognizing adult behavior

and adjusting to it, they survive. Babies quickly learn that crying bring food and smiles get attention. We're designed for survival not freedom. Consider Buddha's excellent advice:

"Believe nothing, no matter where you read it, or who has said it, even if I have said it, unless it agrees with your reason and your own common sense."

This is the opposite of what adults teach children: teachers test and grade them on their ability to memorize answers. At what point must we teach our children to think for themselves? There are no required college courses called "undoing the damage of the last 18 years of your life" or "how to escape the evil tyranny of your dogmatic education." We're on our own to figure out what freedom means.

Freedom grows best in diversity. Absorb ideas. Compare them. Question them. Challenge them. If you share ideas with only those who agree with your philosophies, you're just sharpening your prejudices. Sharpening prejudices can be fun, but it's not thinking, free or otherwise. Finding safe places to share different ideas is hard to find, so start looking now.

The third challenge: be alone

Many of history's wisest men retreated from their routines for a time. Jesus, Buddha, Moses, and Muhammad all freed themselves from the conventions and commitments of normal life. Only then were they able to discover, to transform, learn and understand themselves in ways that changed the world. They had to break chains and bonds to think freely. Only with new perspective and priorities, did they choose to return. I doubt this choice was popular among those who knew them. Their long absences bothered their children, friends, landlords, and tennis partners.

They say the fish is the last to see the water. But what if the fish

could step out of the tank now and then? You're not a fish: you can take that step whenever you like.

When was the last time you were free from others? Can you name the last day you spent alone with your thoughts? Travel, meditation, long baths, a run in the woods—they're all ways to experience the solitude we need to think freely, and to understand ourselves for who we really are. Our heart of hearts, our truest, freest voice, is always talking, but it's timid. We can't hear it over the chatter of everyday life. Make quiet time to learn how to hear it. We're still free to ignore that voice, but only after we have tried to listen. Being free has never been easy, which explains why so few, despite what they say, truly are.

04

HOW TO DETECT
BULLSHIT

Everyone lies: it's just a question of how, when, and why. From the relationship-saving, "you look thin in those pants," to the improbable, "your table will be ready in five minutes," truth manipulation is part of the human condition. Accept it now.

As irrational beings who find it hard to accept tough truths, our deceptions protect us from each other and ourselves. Deceptions help avoid unnecessary conflicts, hiding the confusion of our psychologies from those who don't care. White lies are the spackle of civilization, tucked into the dirty corners our necessary but inflexible idealisms create.

But lies, serious lies, destroy trust, the binding force in all relationships. Bullshit (BS) is a particularly troublesome kind of lie. Bullshit involves unnecessary deceptions, in the gray area between polite white lies and malicious fabrications. The Bullshitters, ignorant of facts, invent a story to protect themselves. They don't mean any harm, although collateral damage often happens. BS can be hard to detect, so this is a crash course in BS detection. But be warned: there are several bits of BS in this essay. You'll have to find them for yourself.

Why people bullshit: a primer

The Western canon's first lie comes from the Old Testament.[1] To recap the book of Genesis, God tells Adam and Eve not to eat fruit from the tree of knowledge, as pretty as it is, or they'll die. God wanders off to do some unexplained godlike things, as gods are prone to do. Meanwhile, the oh-so-tempting tree is out for all to see, without a pack of divine pitbulls or angelic electrified fences to guard it. Satan slinks by and convinces Eve that the fruit of the tree is good: so she and Adam have a snack. God returns instantly and scolds Adam—who blames Eve which results in everyone, snakes, people and all, getting thrown out of Eden forever.

Here, nearly everyone lied. God was deceptively ambiguous, a kind of lie, in the description of the fruit. The fruit wasn't fatal in any sense Adam could understand. If we were Adam, only a few moments old and ignorant of everything, when God mentioned "death" we'd either have no idea what God meant, or would assume the literal kind. Satan misrepresents the fruit's power, and Adam approximates a lie by pointing a wimpy finger at Eve. It's a litany of deception and a cautionary tale: in a book where everyone lies in the first pages, is it a surprise how the rest plays out?

People lie for three reasons. The first is to protect themselves. They wish to protect something they need, such as a concept they cherish, or to prevent something they fear, like confrontation. There is a clear psychological need motivating every lie. A well known fib, "the dog ate my homework," fits this model. Desperate not to be caught, children's imaginations conceive amazing improbabilities: fires, plagues, revolutions, curses and illnesses. They reinvent the laws of physics and

---

[1] One popular interpretation of Genesis 2:17 is that God meant "you will be mortal" when God said "you will surely die," so it's not a lie. My view is how could Adam know what he meant at the time? Even if that's what he meant, I find it hard to believe anyone would interpret it that way.

the space-time continuum on fateful mornings when children find themselves at school, sans-homework. It's an emotional experience, this need to BS: logically speaking, the stress of inventing and maintaining a lie is harder than just telling the truth. Yet we don't.

The second reason people lie? Sometimes it works. It's a gamble, but when we sneak one by, wow. Did you lie to your parents about girls, boys, drugs, grades, or where you were until two a.m.? I sure did and still do. My parents still think I'm a famous painter / doctor in London. (Shhhhh.) My best friend still believes his high school girlfriend and I didn't get it on every time I borrowed his car.[2] Even my ever faithful dog Butch used to lie, in his way. He'd liberate trash from all our garbage cans, then hide in his bed, hoping his distance from the Jackson Pollock-esque refuse mess in my kitchen signified innocence.

The third reason we lie? We want others to see us as better than we see ourselves. Sadly, comically, we believe we're alone in this temptation, and the shame it brings. Everyone has weak moments when fear and greed melt our brains tempting us to say the lies we wish were true. The deepest honesty is from those willing to admit to their lies and own the consequences. Not the pretense of the saints, who pretend, incomprehensibly, inhumanly, to never even have those urges at all. But enough philosophy: let's get to detection.

Bullshit detection: how do you know what you know?

The first rule? Expect BS. Fire detectors expect a fire at any moment: they're not optimists. To detect bullshit, you have to question everything you hear. Socrates, the father of Western wisdom, expected ignorance. Like Socrates, assume people,

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[2] This is, of course, complete bullshit. I have never lied to anyone. Ever.

yourself included, are unaware of their ignorance. You must probe intelligently, and compassionately, to sort out the difference.

When someone force feeds you an idea, an argument or an obscure reference, ask the question: "How do you know what you know?" Challenging claims illuminates ignorance. It instantly diminishes the force of an opinion based in bullshit. Here are some examples:

- "The project will take five weeks." How do you know this? What might go wrong that you haven't accounted for? Would you bet $10,000 on your claim? $100,000?

- "Our design is groundbreaking." Really? Where is that ground? And who, besides the designers/investors, has this opinion?

- "Studies show that liars' pants are flame resistant." What studies? Who ran them and why? Did you actually read the study or a two sentence summary? Are there any studies that make the opposite claim?

Notice your subject often can't answer quickly when you ask: "How do you know what you know?" Even credible thinkers need time to establish their logic and separate assumptions from facts.

Answers such as: "this is purely my opinion" or "it's a guess—we have no data," are fine, but those claims are weak—far weaker than most people make, especially if they're making stuff up. Identifying opinion and speculation counts as progress in the war against deception.

Bullshit detection: what is the counter argument?

A well-considered argument must involve alternate positions,

so ask for them. Bullshitters don't do research, they make things up. A counterargument forces them to defend their position or end the discussion to conduct due diligence. Similar questions include: Who else shares this opinion? What are your concerns and how will they be addressed? What would have to happen for you to have a different (opposite) opinion?

Time and pressure

Good thoughts hold together. A solid concept maintains its shape no matter how much you poke, probe, test, and examine it. But bullshit is all surface. Much like a magician's bouquet, it's pretty as it flashes before your eyes, but you know it's fake when it lands in your hands. Bullshitters know this and crave urgency: they resist reviews, breaks, consultations, or sleeping on a decision before it's made.

Use time as an ally. Never make big decisions under duress. Ask to withhold judgment for a day, and watch the response. Invite experts to help make decisions to add intellectual pressure. Hire them if necessary: the $500 lawyer/accountant/consultant fee is bullshit insurance. These habits create inhospitable environments for bullshit.

Confidence in reduction

Jargon and obfuscation hide huge quantities of bullshit. Inflated language intimidates others and is always a tactic to make people feel stupid. If you don't understand something, it's their fault, not yours. Cling to your doubts longer than the bullshitter can maintain their charade.

For example:
 "Our dynamic flow capacity matrix has unprecedented downtime resistance protocols."

If you don't understand, err on your own side. Don't assume you're missing something: assume they haven't communicated

clearly. They might be hiding something, or maybe they don't know what they're talking about. Wise responses include:

- I refuse to accept this proposal until I, or someone I trust, fully understands it.

- Explain this in simpler terms I can understand (repeat if necessary).

- Break this into pieces you can verify, prove, compare, or demonstrate for me.

Are you trying to say, "our network server has a backup power supply?", If so, can you speak plainly next time?

Assignment of trust

The fourth bullshit-detection tool is to assign trust carefully. Never agree to more than what your trust allows. Who cares how confident they are? The question is: how confident are you? Divide requests, projects or commitments into pieces so people can earn your trust one step at a time. And trust can be delegated. I don't need to trust you if you've earned the trust of people I trust. Nothing defuses BS faster than communities that help each other eliminate BS. Great teams and families help each other find truth, both in others and themselves, as sometimes the real deceptions we need to fear are our own.

05

SHOULD YOU BE POPULAR OR GOOD?

One of the grand confusions of life is between what is popular and what is good. Often people confuse popularity with goodness, and it's a problem. When we consider the top ten books or movies of the year, we often consider which ones were most popular, but popularity doesn't mean they were necessarily the best. Being popular means appealing to everyone, which demands safe, predictable choices. A good idea scares some people, and makes others uncomfortable, which works against its popularity.

For example, I knew a guy in high school who was very popular, but I don't think anyone would say he was good at anything. He was nice, but bland. I knew another guy in high school who was good at lots of things, but for some reason, he wasn't popular. He spoke his mind and didn't always try to please everyone. I suspect if these two guys ever met, the universe would have exploded. Good thing that didn't happen.

Many creative people are tempted to strive for popularity. They make, do, and say things others like, in the hopes of pleasing them. This motivation is nice. And sometimes the end result is

good. But mediocrity is often the result of trying hard to please others. The internal goodness detector of those creative people is disappointed with what they make. Popularity often comes at a price: bland, predictable, and meaningless, instead of interesting, surprising, and meaningful.

And then there are the *artistes,* the people who develop their own sense of what they think is good and insist on striving for it, no matter what anyone says. Provided they don't expect anyone else to care, these people are quite interesting. Although, there is little worse in the world than an artiste who insists on telling you how stupid you are for not seeing their brilliance.

In history, it's interesting how characters like van Gogh, Michelangelo, and Bukowski balanced the popular vs. good challenge. Most famous artists accepted commissions, and in some cases those commissions resulted in their most famous work. For example, da Vinci and Michelangelo had many clients and lived on commission income. If you wonder why much of what you see in museums are portraits of old wealthy people, it's because they're the only ones who could afford to pay for paintings. In other cases, like Bukowski, Henry Miller, and Van Gogh, they rarely compromised, sometimes to their own detriment.

What most creative people want is to be good *and* popular. They want to achieve their own sense of goodness, while at the same time pleasing others.. It's a tightrope. Especially once they've earned some popularity, people tend to want more of the same. And that rarely aligns with a creative person's progressive sense of goodness. So from the creator's standpoint, a few big popular victories early on can put handcuffs on how good they can ever be while still being popular. My first book was on project management, and I suspect for some people, no matter how many books I write on other things, I'll always be the project management guy. And that's ok. It's better than not being

popular for anything good at all. I know I want to be popular enough to succeed, but I also expect to fail occasionally if I'm following my own compass for what is good.

How do you balance your sense of good vs. your sense of popular? Do you find clear places where they are in conflict (for example, your client's sense of good vs. your own)? How do you balance this with staying sane? Do you divide your creative energy into "work creative" and "personal creative," giving yourself a safe place to be an artist? Or do you still think popular and good are always the same?

Hope you enjoyed the free preview.

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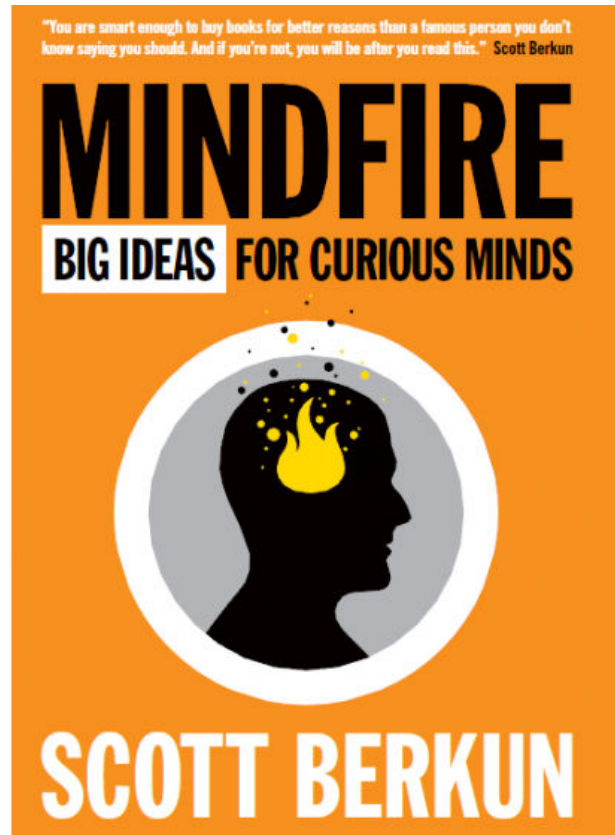
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CONFESSIONS
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2

The attack of the butterflies

"The best speakers know enough to be scared…the only difference between the pros and the novices is that the pros have trained the butterflies to fly in formation."

Edward R. Murrow

While there are good reasons people fear public speaking, until I see someone flee from the lectern mid-presentation, running for his life through the fire exit on stage left, we can't say public speaking is scarier than death. This oddly popular factoid, commonly stated as "Did you know people would rather die than speak in public?" is a classic case of why you should ask people how they know what they think they know. This "fact" implies people will, if given the chance, choose to jump off buildings or swallow cyanide capsules rather than give a short presentation to their co-workers. Since this doesn't happen in the real world—no suicide note has ever mentioned an upcoming presentation as the reason for leaving this world—it's worth asking: where does this factoid come from?

The source is *The Book of Lists* by David Wallechinksy et al. (William Morrow), a trivia book first published in 1977. It included a list of things people were afraid of, and public speaking came in at number one. Here's the list, titled "The Worst Human Fears":

1. Speaking before a group

2. Heights

3. Insects and bugs

4. Financial problems

5. Deep Water

6. Sickness

7. Death

8. Flying

9. Loneliness

10. Dogs

11. Driving/Riding in a car

12. Darkness

13. Elevators

14. Escalators

People who mention this factoid haven't seen the list because if they had seen it, they'd know it's too silly and strange to be taken seriously. *The Book of Lists* says a team of market researchers asked 3,000 Americans the simple question, "What are you most afraid of?", but they allowed them to write down as many answers as they wanted. Since there was no list to pick from, the survey data is far from scientific. Worse, no information is provided about who these people were.[1] We have no way of knowing whether these people were representative of the rest of us. I know I avoid most surveys I'm asked to fill out, as do many of you, which begs the question why we place so much faith in survey-based research.

When you do look at the list, it's easy to see that people fear heights (#2), deep water (#5), sickness (#6), and flying (#8) because of the likelihood of dying from those things. Add them up, and death easily comes in first place, restoring the Grim Reaper's fearsome reputation. Facts about public speaking are often misleading since they frequently come from people selling services, such as books, that benefit from making public speaking seem as scary as possible.[2] Even if the research were done properly, people will tend to list fears of minor things they encounter in every day life more often than more fearsome but abstract experiences like dying.

When thinking about fun things like death, bad surveys, and public speaking, the best place to start is with the realization that no has died from giving a bad presentation. Well, at least one person did, President William Henry Harrison, but he developed pneumonia after giving the longest inaugural address in U.S. history. The easy lesson from his story: keep it short or you might die. This exception aside, by the time you're important enough, like Gandhi or Lincoln, for someone to want to kill you, it's not the public speaking that's going to do you in. Malcolm X was shot at the beginning of a speech in 1965, but he was a fantastic speaker (if anything, he was killed because he spoke too well). Lincoln was assassinated *watching* other people on stage. He was shot from behind his seat, which points out one major advantage of giving a lecture: it's unlikely someone will sneak up from behind you to do you in without the audience noticing. Being on stage behind a lectern gave safety to President George W. Bush in his last public appearance in Iraq when, in disgust, an Iraqi reporter threw one, then a second shoe at him. Watching the onslaught from the stage, Bush had the advantage and nimbly dodged them both.

The real danger is always in the crowds. Fans of rock bands like The Who, Pearl Jam, and the Rolling Stones have been killed in the stands. And although the drummer for Spinal Tap did mysteriously explode while performing, very few real on-stage deaths have ever been reported in the history of the world. The danger of crowds is why some people prefer the aisle seats—they can quickly escape, whether they're fleeing from fire or boredom. If you're on stage, not only do you have better access to the fire exits, but should you faint,

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[1] The Book of lists doesn't say, but it's likely their source was the 1973 report published by the Bruskin/Goldkin agency.

[2] If you combined this list to create scariest thing possible, it'd be to give a presentation, in an airplane at 35,000 feet, near a spider web, while doing your taxes, sitting in the deep end of a pool in the airplane, feeling ill, with the lights out, next to an escalator that leads to an elevator.

fall down, or suffer a heart attack, everyone in attendance will know immediately and call an ambulance for you. The next time you're at the front of the room to give a presentation, you should know that, by all logic, you are the safest person there. The problem is that our brains are wired to believe the opposite; see Figure 2-1.

Figure 2-1. When you see the left, your brain sees the right.

Our brains, for all their wonders, identify the following four things as being very bad for survival:

- Standing alone

- In open territory with no place to hide

- Without a weapon

- In front of a large crowd of creatures staring at you

In the long history of all living things, any situation where all the above were true was very bad for you. It meant the odds were high that you would soon be attacked and eaten alive. Many predators hunt in packs, and their easiest prey are those who stand alone, without a weapon, out on a flat area of land where there is little cover (e.g., a stage). Our ancestors, the ones who survived, developed a fear response to these situations. This means despite my 15 years of teaching classes, running workshops, and giving lectures, no matter how comfortable I appear to the audience when at the front of the room, it's a scientific fact my brain and body will experience some kind of fear before, and often while, I'm speaking.

The design of the brain's wiring—given it's long operational history, hundreds of thousands of years older than the history of public speaking, or speaking at all for that matter—makes it impossible to stop fearing what it knows is the worst tactical situation for a person to be in. There is no way to turn it off, at least not completely. This wiring is so primal that it lives in the oldest part of our brains where, like many of the brain's other important functions, we have almost no control.

Take, for example, the simple act of breathing. Right now, try to hold your breath. The average person can go for a minute or so, but as the pain intensifies—pain generated by your nervous system to stop you from doing stupid things like killing yourself—your body will eventually force you to give in. Your brain desperately wants you to live and will do many things without asking permission to help you survive. Even if you're particularly

stubborn, and you make yourself pass out from lack of oxygen, guess what happens? You live anyway. Your ever faithful amygdala, one of the oldest parts of your brain, takes over, continuing to regulate your breathing, heart rate, and a thousand other things you never think about until you come to your senses (literally and figuratively).

For years I was in denial about my public speaking fears. When people asked, after seeing me speak, whether I get nervous, I always did the stupid machismo thing. I'd smirk, as if to say, "Who me? Only mere mortals get nervous." At some level, I'd always known my answer was bullshit, but I didn't know the science, nor had I studied what others had to say. It turns out there are consistent reports from famous public figures confirming that, despite their talents and success, their brains have the same wiring as ours:

- Mark Twain, who made most of his income from speaking, not writing, said, "There are two types of speakers: those that are nervous and those that are liars."

- Elvis Presley said, "I've never gotten over what they call stage fright. I go through it every show."

- Thomas Jefferson was so afraid of public speaking he had someone else read the State of the Union address (George Washington didn't like speaking either).

- Bono, of U2, claims to get nervous the morning of every one of the thousands of shows he's performed.

- Winston Churchill, JFK, Margaret Thatcher, Barbara Walters, Johnny Carson, Barbara Streisand, and Ian Holm have all reported fears of public communication.[3]

- Aristotle, Isaac Newton, Charles Darwin, Winston Churchill, John Updike, Jack Welch, and James Earl Jones all had stutters and were nervous speakers at one time in their lives.[4]

Even if you could completely shut off these fear-response systems, which is the first thing people with fears of public speaking want to do, it would be a bad idea for two reasons. First, having the old parts of our brains in control of our fear responses is a good thing. If a legion of escaped half-lion, half-ninja warriors were to fall through the ceiling and surround you—with the sole mission of converting your fine flesh into thin sandwich-ready slices—do you want the burden of consciously deciding how fast to increase your heart rate, or which muscles to fire first to get your legs moving so you can run away? Your conscious mind cannot work fast enough to do these things in the small amount of time you'd have to survive. It's good that fear responses are controlled by the subconscious parts of our minds, since those are the only parts with fast enough wires to do anything useful when real danger happens.

The downside is this fear-response wiring causes problems because our lives today are very safe. Few of us are regularly chased by lions, or wrestle alligators on our way to work, making our fear-response programming out of sync with much of modern life. As a result, the same stress responses we used for survival for millions of years get applied to non-survival situations by our eager brains. We develop ulcers, high blood pressure, headaches, and other physical problems in part because our stress systems aren't designed to handle the "dangers" of our brave new world: computer crashes, micromanaging bosses, 12-way conference calls, and long commutes in rush hour traffic. If we were chased by tigers on the way to give a presentation, we'd likely find the presentation not nearly as scary; our perspective on what things are worth fearing would have been freshly calibrated.

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[3] From *Conquer Your Speech Anxiety*, Karen Kangas Dwyer (Wadsworth).
[4] *The Francis Effect*, M. F. Fensholt (Oakmont Press), p. 286.

Second, fear focuses attention. All the fun, interesting things in life come with fears. Want to ask that cute girl out on a date? Thinking of applying for that cool job? Want to write a novel? Start a company? All good things come with the possibility of failure, whether it's rejection, disappointment, or embarrassment, and fear of those failures is what motivates many people to do the work necessary to be successful. It's the fear of failure that gives us the energy to proactively prevent failures from happening. Many psychological causes of fear in work situations, being laughed at by coworkers or looking stupid in front of the boss, can also be seen as opportunities to impress or prove your value. Curiously enough, there may be little difference biologically between fear of failure and anticipation of success. In his excellent book *Brain Rules* (Pear Press), Dr. John Medina points out that it is very difficult for the body to distinguish between states of arousal and states of anxiety:

> Many of the same mechanisms that cause you to shrink in horror from a predator are also used when you are having sex—or even while you are consuming your Thanksgiving dinner. To your body, saber-toothed tigers and orgasms and turkey gravy look remarkably similar. An aroused physiological state is characteristic of both stress and pleasure.

Assuming he's right, why would this be? In both cases, it's because your body has prepared energy for you to use. The body doesn't care whether it's for good reasons or bad, it just knows it must prepare for something to happen. If you pretend to have no fears of public speaking, you deny yourself the natural energy your body is giving you. Anxiety creates a kind of energy you can use, just as excitement does. Ian Tyson, a stand-up comedian and motivational speaker, offered this gem of advice: "The body's reaction to fear and excitement is the same…so it becomes a mental decision: am I afraid or am I excited?" If the body can't tell the difference, it's up to us to use our instincts to help rather than hurt us. The best way to do this is to plan before you speak. When you are actually giving a presentation, there are many variables out of you control—it's OK and normal to have some fear of them. But in the days or hours beforehand, you can do many things to prepare yourself and take control of the factors you *can* do something about.

What to do before you speak

The main advantage a speaker has over the audience is knowing what comes next. Comedians—the best public speakers—achieve what they do largely because you don't see the punch lines coming. To create a similar advantage, I, like George Carlin or Chris Rock, practice my material. It's the only way I learn how to get from one point to another, or to tell each story or fact in the best way to set up the next one. And when I say I practice, I mean I stand up at my desk, imagine an audience around me, and present exactly as if it were the real thing. If I plan to do something in the presentation, I practice it. But I don't practice to make perfect, and I don't memorize. If I did either, I'd sound like a robot, or worse, like a person trying very hard to say things in an exact, specific, and entirely unnatural style, which people can spot a mile away. My intent is simply to know my material so well that I'm very comfortable with it. Confidence, not perfection, is the goal.

Can you guess what most people who are worried about their presentation refuse to do? Practice. When I'm asked to coach someone on their presentation, and he sends me his slides, do you know the first question I ask? Did you practice? Usually he says no, surprised this would be so important. As if other performers like rock bands and Shakespearean actors don't need to rehearse to get their material right. The slides are not the performance: you, the speaker, are the performance. And it turns out most of the advice you find in all the great books on public speaking, including advice about slides, is difficult to apply if you don't practice.

The most pragmatic reason for practice is it allows me to safely make dozens of mistakes and correct them before anyone ever sees it. It's possible I'm not a better public speaker than anyone else—I'm just better at catching and fixing problems.

When I practice, especially with a draft of new material, I run into many issues. And when I stumble or get confused, I stop and make a choice:

- Can I make this work if I try it again?

- Does this slide or the previous need to change?

- Can a photograph and a story replace all this text?

- Is there a better lead-in to this point from the previous point?

- Will things improve if I just rip this point/slide/idea out completely?

I repeat this process until I can get through the entire talk without making major mistakes. Since I'm more afraid of giving a horrible presentation than I am of practicing for a few hours, practice wins. The energy from my fear of failing and looking stupid in front of a crowd fuels me to work harder to avoid that from happening. It's that simple.

Now, while everyone is free to practice—it requires no special intelligence or magic powers—most people don't because:

- It's not fun

- It takes time

- They feel silly doing it

- They assume no one else does

- Their fear of speaking leads to procrastination, creating a self-fulfilling prophecy of misery

I know I look like an idiot standing in my underwear at home, talking to a room of imaginary people, practicing a presentation. When I practice in hotel rooms, which I often do, I'm worried at any moment the maid will barge in mid-sentence, and I'd have to attempt to explain why on earth I'm lecturing to myself in my underwear. But I'd rather face those fears in the comfort of my own room—with my own mini-bar, on my own time, over and over as many times as I wish—than in front of a real crowd, a crowd that is likely capturing my performance on videos and podcasts, recording what I'm doing for all time. There are no do-overs when you're doing the real thing.

By the time I present to an actual audience, it's not really the first time at all. In fact, by the third or fourth time I practice a talk, I can do a decent job without any slides, as I've learned how to make the key points by heart. This confidence that comes from practicing makes it possible to improvise and respond to unexpected things—like hecklers, tough questions, bored audiences, or equipment failures—that might occur during the talk. If I hadn't practiced, I'd be so worried about my material I'd be unable to pay attention to anything else, much less anticipate what's coming from the audience. I admit that even with all my practice I may still do a bad job, make mistakes, or disappoint the crowd, but I can be certain the cause will not be that I was afraid of, or confused by, my own slides. An entire universe of fears and mistakes goes away simply by having confidence in your material.

But even with all the practice in the world, my body, like yours, will still decide for itself when to be afraid. Consider, for example, the strange world of sweaty palms. Why would sweaty palms be of use in life-or-death situations? I've had sweaty palms only once, right before I was televised on CNBC. At the start of the taping, sitting on an uncomfortable pink couch, trying to stay calm in the bright lights and cold air, I felt a strange lightness in my palms. With the cameras rolling, I held up my hands to see what was going on. I had to touch them to realize they were sweating. The weirdo that I am, I found this really funny, which, by coincidence, relieved some of my anxiety. The best theory from scientists is that primates, creatures who climb things, have greater dexterity if their hands are damp. It's the same reason why you touch your thumb to your tongue before trying to turn a page of a newspaper. My point is that parts of your body will respond in ancient ways to stress, no matter how prepared you are. That's OK. It doesn't mean you're weird or a coward, it just means your body is trying hard to save your life. It's nice of your body to do this in the same way it's nice of your dog to protect you from squirrels. It's hard to blame a dog for its instinctive behavior, and the same understanding should be applied to your own brain.

Since I respect my body's unstoppable fear responses, I have to go out of my way to calm down before I give a presentation. I want to make my body as relaxed as possible and exhaust as much physical energy early in the day. As a rule, I go to the gym the morning before a talk, with the goal of releasing any extra nervous energy before I get on stage. It's the only way I've found to naturally turn down those fear responses and lower the odds they'll fire. Other ways to reduce physical stress include:

- Getting to the venue early so you don't have to rush

- Doing tech and sound rehearsal well before your start time

- Walking around the stage so your body feels safe in the room

- Sitting in the audience so you have a physical sense of what they will see

- Eating early enough so you won't be hungry, but not right before your talk

- Talking to some people in the audience before you start (if it suits you), so it's no longer made up of strangers (friends are less likely to try and eat you)

All of these things allow you to get used to the physical environment you will be speaking in, which should minimize your body's sense of danger. A sound check lets your ears hear how you will sound when speaking, just as a stroll across the stage helps your body feel like it knows the terrain. These might seem like small things, but you must control all the factors you can to compensate for the bigger ones, the ones that arise during your talking that you cannot control. Speakers who arrive late, change their slides at the last minute, or never walk the stage until it's their turn to speak, and then complain about anxiety, have only themselves to blame. It's not the actual speaking that's the problem; they're failing to take responsibility for their body's unchangeable responses to stress.

There are also psychological reasons why public speaking is scary. These include fears like:

- Being judged, criticized, or laughed at

- Doing something embarrassing in front of other people

- Saying something stupid the crowd will never forget

- Boring people to sleep even when you say your best idea

We can minimize most of these fears by realizing that we speak in public all the time. You're already good at public speaking—the average person says 15,000 words a day. Unless you are reading this locked in solitary confinement, most of the words you say are said to other people. If you have a social life and go out on Friday night, you probably speak to 2, 3, or even 5 people all at the same time. Congratulations, you are already a practiced, successful public speaker. You speak to your coworkers, your family, and your friends. You use email and the Web, so you write things that are seen by dozens or hundreds of people every day. If you look at the above list of fears, they all apply in these situations as well.

In fact, there is a greater likelihood of being judged by people you know because they care about what you say. They have reasons to argue and disagree since what you do will affect them in ways a public speaker never can. An audience of strangers cares little and, at worst, will daydream or fall asleep, rendering them incapable of noticing any mistakes you make. While it's true many fears are irrational, and can't be dispelled by mere logic, if you can talk comfortably to people you know, then you posses the skills needed to speak to groups of people you don't know. Pay close attention next time you're listening to a good public speaker. The speaker is probably natural and comfortable, making you feel as though he's talking to a small group, despite how many people are actually in the audience.

Having a sense of control, even if it's just in your mind, is important for many performers. If you watch athletes and musicians, people who perform in front of massive crowds nightly, they all have pre-show rituals. LeBron James and Mike Bibby, all-star basketball players, chew their nails superstitiously before and during games. Michael Jordan wore his old University of North Carolina shorts under his NBA shorts in every game. Wayne Gretzky tucked his jersey into his hockey pants, something he learned to do before games as a kid. Wade Boggs ate chicken before every single game. These small acts of control, however random or bizarre to us, helped give them the confidence needed to face the out-of-control reality of their jobs. And their jobs are much harder than what public speakers do. For every point Michael Jordan ever scored, there was another well-paid professional athlete, or team of athletes, trying very hard to stop him from scoring.

So, unless a team of presentation terrorists steal your microphone mid-sentence, or put up their own projector and start showing their own slide deck—designed specifically to contradict your every point—you're free from pressures other performers face nightly. Small observations like this make it easier to laugh at nerves, even if they won't go away.

3

Why speakers earn $30,000 an hour

It's 7:47 a.m. at Fisherman's Wharf in San Francisco, so early the sun is just starting to rise. It's an ungodly time and place for any writer to be outside. Writers aren't the most well-adjusted people, and it's telling that our preferred means of interaction with civilization is throwing paragraph-shaped grenades at people from behind the safety of a laptop. I know few writers who love mornings, and the doorman at my hotel—who wears a bright blue sailor's uniform as part of the nautical-themed thrill ride that is the Argonaut Hotel—is clearly on my side. He waves down a cab for me and gives a half smile from underneath his tired eyes, a smile that says, "Doesn't it suck to work this early?" Anyone who finishes the night shift with a sense of humor is a good man indeed. Or perhaps I just look like trash this morning and he finds my appearance entertaining. Maybe it's both.

People talk about sunrises as if they were magical things. Yet here at Fisherman's Wharf, the morning fog forming a glorious orange blanket around a late-winter sunrise, no one except the doorman, the cab driver, and me is awake and outside. You know why? People are lazy. Even if there was a sunrise at 7:47 a.m. as brilliant and soul-stirring as a wall-sized J. M. W. Turner masterpiece, a sunrise giving out hundred-dollar bills and tomorrow's lottery numbers, few of us would be out to see it. Most of the things we say are so wonderful and amazing lose without a fight to an extra hour of sleep. We'd wake up, think it over for a few moments, and fall back into the comfort of our dreams. Sleep deprivation is a curse of the modern age, a problem born from our technological things. Before Edison's light bulb, we averaged 10 hours a night; in 2009, we average nearly half that. And this means, when it comes to sunrises, judge people by what they do, not what they say.

On this morning the sun is putting on quite a show, but where are all the sunrise lovers? They're not with me out on the street. They're sleeping, just as I would be if I could. The truth is public speakers everywhere would have an easier time keeping their audience awake if more people actually slept well the night before. If the ascension of our nearest star, the source of all energy and life on earth, the universal symbol for all that is good, happy, and hopeful can't get people out of bed, what chance does a speaker have?

In all honesty I love the sunrise…it's the getting up to see it I hate. Sunrises are transcendent when viewed through a hotel window, from a comfy bed, when I'm not expected to do anything for anyone for hours. My professional problem is that public speaking is often scheduled hundreds of minutes on the wrong side of noon. And on the days I'm lucky enough to get top billing for an event, I earn an additional chronological treat: the keynote means I'm to set the tone for the day, a challenge that—given our limited understanding

of space and time—requires me to speak before anyone else. All this explains why, at 7:48 a.m. on a Tuesday, I am showered, cleaned, shaved, pruned, fed, and deodorized, wearing a pressed shirt and shiny shoes, in a cab on my way to the San Francisco waterfront. Like the gorgeous light from the sun still conquering the clouds over the San Francisco Bay outside my cab window, this morning is both great and horrible, a thrill and a bore. It's an amazing way to live, as I get paid to think and learn and exchange ideas—all things I love. But I'm far from home, going to a strange place, and performing for strangers, three stressful facts than mean anything can happen, especially since it's the worst of all times for my particular brain—early morning.

Making it to the venue is the first challenge a speaker-for-hire faces, and let me tell you, it's often a bigger challenge than the lecture itself. The lecture I know well since I created it. I have no one to blame if it stinks. And when I do finally arrive at the room I'm to speak in—even if it's the worst room in the world—I can try to adapt to whatever problems it has. But until I get to the room, until I make my way through the airports, cities, highways, conference centers, office complexes, and parking lots, I can't begin to get ready. Being in transit means, psychologically speaking, you are in the purgatory of being *almost* there. Unlike lecturing, where I feel in control, it's the things I can't control that create stress— like the taxi driver getting lost, the traffic jam a handful of miles from where I'm supposed to be, and the confusing corporate and college campuses impossible for visitors like me to navigate. How could anyone know Building 11 is next to Building 24 on Microsoft's main campus, or that the Kresge Auditorium is hiding behind Bexley Hall at MIT? From experience, I know there is nothing worse than being in the strange territory of very close and surprisingly far at the same time.

When I arrive at the Fort Mason complex, the venue for this particular Tuesday, I discover, as my taxi roars off, I'm far from where I need to be. Fort Mason is a sprawling Civil War-era military base, recently converted into a community center (see Figure 3-1). The word *complex* is apt. My instructions say to find Building A, but there are no signs, and, more importantly, no normal looking buildings, only endless rows of identical barracks, towers, and narrow parking lots. The Fort Mason Center has one major flaw: it skipped the conversion. It still looks like a place designed to kill you, not welcome you to fun community activities. There are fences, gates, barricades, barbed wire, and tall stone walls with sharp corners.

Figure 3-1. The speaking venue: the intimidating Fort Mason, San Francisco.

For comparison, there's a military museum in Kiev with two decommissioned World War II tanks at the main entrance, painted top to bottom with fun, peaceful swirls in bright rainbow colors (see Figure 3-2). Now that's a conversion—one day a death machine, the next a happy, silly plaything. Fort Mason, on the other hand, looks like a place the Spartans would say is too spartan. They'd demand a row of shrubs and fresh paint before they'd even consider moving in.

Figure 3-2. The National War Museum in Kiev, Ukraine.
This is how to renovate a thing made for war.

Trying to find my way, I stop at the front gate—which is what I do instinctively at gates near things looking like military bases—and only after long moments standing like an idiot do I realize I'm free to enter. No ID or white flag required. The gate is for cars, which explains the strange look from the guard: I'd been standing in the car lane the entire time. I wander aimlessly through the complex, surviving several dead-ends, wrong turns, and unlabeled parking lots, trying not to imagine snipers in the towers above, until I find Building A and happily step inside.

The event at Fort Mason is run by Adaptive Path, a Bay Area-design consulting company, and I know these folks well. They've hired me before, and I say hello to friendly faces. I soon meet Julia, one of the event organizers, and after a brief chat she hands me an envelope. I know that inside is a check for $5,000, the fee for my services. I want to open it and look. My brain still thinks in 15-year-old terms of money, where $100 is tons and $500 is amazing. Anything over that simply does not exist in the surprisingly large 15-year-old part of my mind. I want to look inside, not because I don't trust Julia, but because I don't trust myself. I'm baffled at how adults pay other adults so much for doing boring, safe adult things. My childhood friend Doug drove his mom's Cadillac over the big hill on the wrong side of the entrance to the Whitestone Shopping Center in Queens at 60 miles per hour—with all of us screaming in the back seat—for free. He risked all of our lives without payment, other than his own insane but infectious pleasure. Meanwhile, bankers and hedge fund managers make millions playing with Excel spreadsheets, an activity with zero chance of bodily harm, save carpal tunnel syndrome. They earn more in a year than

the guys who put the roof on my house, paved the road that leads to it, or work as firemen and policemen to protect it will see in a lifetime. It's curious facts like these we'll have to explain twice when the aliens land.

In the movies, gangsters are always opening briefcases and counting money, but in real life, no one does this. It's awkward, strange, and slimy. Money for Americans, a culture cursed by our unshakable Puritanical roots, is loaded with lust and shame. Yet, our modern corporate culture values the accumulation of financial wealth above all else. The resulting contradiction causes much of what's wonderful and horrible about America. I suspect many of you jumped right to this chapter because of its title, or noticed it first when you skimmed through the table of contents. Not because you're evil, but because we're fascinated and revolted by money at the same time, especially regarding work that seems superficial, like public speaking. I know I'm paid for something that, in the grand scheme, is not Work. It's work, with a little *w*, but it's not shoveling coal, building houses, or fighting in wars, which earn the capital *W*. I will never hurt my back, ruin my lungs, or lose a limb as a public speaker (unless I lecture at a convention of drunk lion tamers). And despite the many questions that come to mind when Julia hands me that check, I cram it into my bag and head for the lectern where I can get to work.

I'm worth $5,000 a lecture, and other speakers are worth $30,000 or more for two reasons: the lecture circuit and free market economics.[1] People come up after I give a lecture and ask, "So when did you get on the lecture circuit?" And I respond by asking, "Do you know what the circuit is?" And they never have any idea. It's a term they've heard before, despite the fact it's never explained, and it somehow seems to be the only reasonable thing to ask a public speaker when you're trying to seem interested in what he does for a living. Well, here's the primer. Public speaking, as a professional activity, became popular in the U.S. before the Civil War. In the 1800s—decades before electricity, radio, movies, television, the Internet, or automobiles—entertainment was hard to find. It explains why so many people sang in church choirs, read books, or actually *talked* to each other for hours on end: there was no competition.

In the 1820s, a man named Josiah Holbrook developed the idea of a lecture series called Lyceum, named after the Greek theater where Aristotle lectured his students (for free). It was amazingly popular, the *American Idol* of its day. People everywhere wanted it to come to their town. By 1835, there were 3,000 of these events spread across the United States, primarily in New England. In 1867, some groups joined up to form the Associated Literary Society, which booked speakers on a singular, prescribed route from city to city across the country. This is the ubiquitous lecture circuit we hear people refer to all the time. Back then it was a singular thing you could get on. "Bye, honey, I'm going on the circuit, be back in six months," was something a famous lecturer might have said. It took that long to run the circuit across the country on horses and return home. Before the days of the Rolling Stones or U2, there were performers who survived the grueling months-long tours without double-decker tour buses, throngs of groupies, and all-hour parties.

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[1] In the interest of transparency and satisfying your curiosity, I average 25–30 lectures a year. Sometimes I'm paid as much as $8,000 depending on the situation. Maybe a third of those lectures are paid only in travel expenses or small fees, since they're self-promotional or for causes I'd like to help. Roughly 40% of my income is from book royalties and the rest from speaking fees. So far, I average around $100,000 a year, less than I made at Microsoft. However, I now have complete independence, which is worth infinitely more. I limit travel to once or twice a month, which means I turn away many gigs; I'd much rather have more time than money, since you can never earn more time.

At first there was little money for speakers. The Lyceum was created as a public service, like an extension of your local library. It was a feel-good, grassroots, community-service movement aimed at educating people and popularizing ideas. These events were often free or low priced, such as 25 cents a ticket or $1.50 for an entire season.[2] But by the 1850s, when high-end speakers like Daniel Webster, Ralph Waldo Emerson, and Mark Twain dominated the circuit, prices for lectures went as high as $20 a ticket—equivalent to about $200 a seat in 2009. Of course, free lectures continued, and they always will, but the high end reached unprecedented levels for people giving speeches. In the late 1800s, it was something a famous person could do and earn more than enough money to make a comfortable living, which is exactly what many famous writers did.

Soon the free market took over. Air travel, radio, telephones, and everything else we take for granted today made the idea of a single circuit absurd. Lecture series, training conferences, and corporate meetings created thousands of events that needed new speakers every year. Some events don't pay, even charging speakers to attend (as it's seen as an honor to be invited to give a presentation), but many hire a few speakers to ensure things go well. For decades, there's been enough demand for speakers that speaker bureaus—talent agencies for public speakers—work as middlemen, matching people who want to have a lecture at their event and speakers, like me, who wish to be paid for giving lectures. If you want Bill Clinton, Madonna, or Stephen King to speak at your birthday party, and you have the cash (see Table 3-1), there is a speaker bureau representing each one of them that would like to make a deal with you. Which brings us pack to whether I'm worth $5,000.

Table 3-1. High-end speakers and their fees.[3]

Speaker	One-hour lecture fee
Bill Clinton	$150,000+
Malcolm Gladwell	$80,000
Garry Kasparov	$75,000+
David Allen	$50,000–$75,000
Patrick Lencioni	$50,000–$75,000
Ben Stein	$50,000–$75,000
Wayne Gretsky	$50,000+
Magic Johnson	$50,000+
Bob Kostas	$50,000+
Ray Kurzweil	$35,000–$50,000
Roger Staubach	$25,000–$30,000
Dave Barry	$25,000–$30,000

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[2] *History of Public Speaking in America*, Robert T. Oliver (Allyn &Bacon), p. 461.

[3] These fees were compiled from public listings on various speaker bureau websites. Most sites note that these fees are variable and may change at any time. See http://www.keyspeakers.com/ or http://www.prosportspeaker.com/.

My $5,000 fee has nothing to do with me personally. I'm not paid for being Scott Berkun. I know I'm paid only for the value I provide to whoever hires me. If, for example, Adaptive Path can charge $500 per person for an event, and they get 500 people to attend, that's $250,000 in gross revenue for Adaptive Path. Part of what will allow them to charge that much, and draw that many people, are the speakers they will have. The bigger the names, the more prestigious their backgrounds, and the more interesting their presentations, the more people will come and the more they will be willing to pay. Even for private functions, say when Google or Ferrari throws an annual event for their employees, how much would it be worth to have a speaker who can make their staff a little smarter, better, or more motivated when returning to work? Maybe it's not worth $30,000 or even $5,000, but there is some economic value to what good speakers, on the right topics, do for people. It depends on how valuable the people in the room are to whoever is footing the bill. Even if it's just for entertainment, or for reminding the audience of important things they've forgotten, a good speaker is worth something. Think of the last boring lecture you were at: would you have paid a few bucks to make the speaker suck less? I bet you would.

The disappointing thing is, for these fees, speakers often don't do very well. After all, they're not being paid directly for their public-speaking skills. The raw economic value proposition is in drawing people to the event, and it's more likely people will come to an event featuring a famous person—even one they suspect is boring to listen to—than to hear the best public speaker in the world if that's his only claim to fame.[4] Two of the worst lectures I've attended were given by famous people: David Mamet (playwright, screenwriter, and director) and Nicholas Pileggi (author of *Wiseguy*, the novel Scorsese's *Goodfellas* was based on). Both occasions were author readings, which are notoriously boring and bad bets for good public speaking. Yet, in both cases, they filled their respective rooms impressively well. However, I bet no one in attendance got much from the experience of listening to them, except the right to say they saw a famous person speak, which perhaps is also worth something.

The challenge for event organizers, who have limited budgets and tough timelines, is to manage the three unavoidable criteria for picking people to talk at their events. They must find speakers who are:

1. Famous or credible for a relevant topic

2. Good at speaking

3. Available

Two out of three is often the best they can do. It's common to see good speakers who don't have much to say, as well as experts who are brilliant but boring. To secure someone with all three often requires some cash, and as a result, I am one of thousands of people at the low end of a very high pay scale activity.

To put the numbers so far in this chapter in perspective, the average adult on planet Earth earns $8,200 a year (U.S. dollars). The average American makes about $45,000. Since you see your paycheck, you know exactly where you stand. I think it would be smart for corporations to put information like this on their checks—it would prevent many people from complaining about what they don't have.[5] Almost half of the world's population

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[4] There is an annual competition for the world's best public speaker, but I bet you've never heard of the winners: http://www.toastmasters.org/Members/MemberExperience/Contests/WorldChampions_1.aspx.

[5] I also think it would be good if salaries were made public, which is why I offered my

doesn't have clean running water or reliable electricity, no matter how well they are paid. From a planetary view, if you're reading this book indoors, under an electric light, within walking distance to a stocked refrigerator or a take-out delivery menu you can afford to order from, and rarely find yourself worrying about malaria or dysentery, you are doing quite well. And if you're still not happy, compared to most of the galaxy, a place comprised of 99.9% dead, empty space, the fact you're even alive, and in the form of a species evolved enough to know you're alive, and educated enough to read books reminding you of how rare life is, makes you astronomically fortunate. We should be happy about this, but mostly it seems we're not.

Unfortunately, we know, care, and obsess more about the 10% of the world who earn more than we do, rather than the 90% who earn less. And although you might disapprove of my speaking fees, I'm no different from you. I'm well aware of speakers who earn more than me but who have less to say, and say it worse than I would. It's safe to say no matter where you stand, someone would be happy to be in your shoes, just as you'd be happy to be in someone else's. I know all too well that rock stars, movie actors, Fortune 100 executives, and professional athletes make millions annually just for endorsing things they had nothing to do with. If I'm overpaid, at least it was to perform a service where I risk getting booed off the stage. An endorsement is paid for liking, or merely pretending to like, something. It's not work in any familiar sense of the word, since it's a vague approval of work done by people the endorser has likely never met. Tiger Woods and LeBron James make $50+ million a year from endorsements alone, an annual income so large it's more than the average American could earn in 10 lifetimes. This cannot seem fair, and in a philosophical sense it isn't. They are not doing anything for the greater good. They are not educating children, helping the poor, stopping wars, or curing diseases. In fact, depending on what they're endorsing, they're likely increasing our desire for what we don't have, can't afford, and probably don't need.

However, from another perspective, we all know people earn as much as they can argue for. If you're a fan of the free market, you must accept that if you feel underpaid, it's up to you to do something about it—the most free part of any market is *you*. You are free to quit and live in the woods like Thoreau. Or, start your own business where you decide how much you're paid. For me, this means if I ever want to earn as much for a lecture as Bill Clinton or Bob Kostas, I need to become way more famous by, in increasing order of desperation, writing better books, getting a better agent, or marrying Jessica Simpson. Of course, we are all free to complain about how unfair things are, as I am here. But let's be fair to people who earn more money than you think they should, including LeBron James, Tiger Woods, or even me. I bet if you picked an average American and his average job, and asked him using average language whether he'd rather be paid $100,000 instead of $45,000 for doing the same work, it's a safe bet that, on average, he'd say yes.

The only remaining defense for the speaker fees I'm paid is that I'm compensated for all the things everyone forgets I have to do in order to be capable of speaking. A keynote lecture to a large crowd takes about 60 minutes to deliver. Arguably this is more intense and stressful than the average office worker's entire week, but let's put that aside. To make and practice a new lecture takes two days of full-time work, which is 16 hours. Then consider my trip to get to the venue, including the security lines I have to wait in, the airplane flight I have to take, the cabs I have to ride in, the hotels I have to sleep in, and on it goes. Now many people can give lectures, and I'm not being paid simply for talking into a microphone. I'm

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fees and income. The overpaid and underpaid would be visible and more likely to be corrected. Or, total anarchy would ensue and civilization would end. Either way, it would be fun to watch.

paid for the decades of experience listed on my resume that, in theory, should make what I have to say interesting, provocative, entertaining, educational, inspiring, and whatever other adjectives the people who hire me mention in their marketing material. I'm good at teaching, which is uncommon and worth a few bucks, but lastly there is the ultimate factor: I'm paid to speak at one venue instead of speaking at another. When demand outweighs supply, there are fees to be paid. The more demand, the higher the fees.

The unspoken risk I run is having no salary. I have no pension. I have no extended contract guaranteeing me lecture gigs forever. This book could bomb or be destroyed in reviews, and my speaking career could come to an unfortunate and immediate end, which in the grand scheme of things would be OK. I didn't quit my job with the goal of earning $30,000 an hour—I quit to see if I could pull this off at all. And now that I have for the past five years, my goal is to see how long I can make an independent living purely on the merits of what I write and what I say.

"The naked truth about innovation
is ugly, funny, and eye-opening, but it
sure isn't what most of us have come to
believe. With this book, Berkun sets us
free to try and change the world…"

—Guy Kawasaki, author of
The Art of the Start

The Myths of Innovation

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The Myths of Innovation

by Scott Berkun

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People love new ideas

Imagine it's 1874, and you've just invented the telephone. After high-fiving your friend Watson, you head down to Western Union—the greatest communication company in the world—and show your work. Despite your excellent pitch (a century before PowerPoint), Western Union turns you down on the spot, calls the telephone a useless toy, and shows you to the door. Would you have given up? What if the next five companies turned you down? The next 25? How long would it take you to lose faith in your ideas?

Fortunately, Alexander Graham Bell, the telephone's inventor, didn't listen to the folks at Western Union.[1] He started his own business and changed the world, paving the way for the mobile phone in your pocket. Similar stories surround innovators like Google founders Larry Page and Sergey Brin, whose page rank ideas were turned down by AltaVista and Yahoo!, the dominant search companies of the day. George Lucas was told all kinds of no by every major Hollywood studio but one, for the original *Star Wars* screenplay. And, don't forget that Einstein's $E=mc^2$, Galileo's sun-centered solar system, and Darwin's theory of evolution were laughed at for years by experts around the world.

Every great idea in history has the big, red stamp of rejection on its face. It's hard to see today because once ideas gain acceptance, we gloss over the hard paths they took to get there. If you scratch any innovation's surface, you'll find the scars: they've been roughed up and thrashed around—by both the masses and leading minds—before they made it into your life. Paul C. Lauterbur, winner of the Nobel Prize for coinventing MRI, explained, "You can write the entire history of science in the last 50 years in terms of papers rejected by *Science* or *Nature*."[2] Big ideas in all fields endure dismissals, mockeries, and persecutions (of them and their creators) on their way to changing the world. Many novels in classics libraries, including James Joyce's *Ulysses*, Mark Twain's *The Adventures of Huckleberry Finn*, and J. D. Salinger's *The Catcher*

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[1] Bell is often credited as the inventor, but as you'll learn in Chapter 5, it's rarely that simple. Elisha Gray, Philipp Reis, Innocenzo Manzetti, and others have similar claims. For a chronology of inventors who possibly contributed to the telephone, see *http://en.wikipedia.org/wiki/Invention_of_the_telephone*. And while Western Union did reject Bell's proposal, it's unclear how strong their rejection was. (If they saw its potential, would it have been wise to tell Bell on the spot?)

[2] Kevin Davies, "Public Library of Science Opens Its Doors," *BIO-IT World* (February 2007), *http://www.bio-itworld.com/archive/111403/plos/*.

in the Rye were banned upon publication; great minds like Socrates and Plato even rejected the idea of books at all.[3]

The love of new ideas is a myth: we prefer ideas only after others have tested them. We confuse truly new ideas with good ideas that have already been proven, which just happen to be new to us. Even innovators themselves read movie reviews, consult Zagat restaurant ratings, and shop at IKEA, distributing the burden of dealing with new ideas. How did you choose your apartment, your beliefs, or even this book? We reuse ideas and opinions all the time, rarely committing to the truly *new*. But we should be proud; it's smart. Why not recycle good ideas and information? Why not take advantage of the conclusions other people have made to efficiently separate what's good and safe from what's bad and dangerous? Innovation is expensive: no one wants to pay the price for ideas that turn out to be not quite ready for prime time.

There is an evolutionary advantage in this fear of new things. Any ancestor who compulsively jumped off every newly discovered cliff or ate only scary-looking plants died off quickly. We happily let brave souls like Magellan, Galileo, and Neil Armstrong take intellectual and physical risks on our behalf, watching from a safe distance, following behind (or staying away) once we know the results. Innovators are the test pilots of life, taking big chances so we don't have to. Even early adopters, people who thrive on using the latest things, are at best adventurous consumers, not creators. They rarely take the same risks on unproven ideas as the innovators themselves.

The secret tragedy of innovators is that their desire to improve the world is rarely matched by support from those they hope to help.

Managing the fears of innovation

What's the most stressful thing that can happen to you? Juggling hungry cocaine-addicted baby tigers? Doing stand-up comedy in front of your coworkers and in-laws? Well, if you believe the studies, it's the big five: divorce, marriage, moving, death of a loved one, and getting fired.[4] All stressful events, including tiger-juggling,

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[3] Plato, *Phaedrus*, *http://classics.mit.edu/Plato/phaedrus.html*. In this dialogue, the risks of using books—instead of spoken language—are debated. They feared people would become stupid if they adopted the technology of writing; similar fears arise with every new technology.

[4] *http://www.surgeongeneral.gov/library/mentalhealth/chapter4/sec1_1.html*.

combine fear of suffering with forced change. A divorce or new job demands that your life change in ways out of your control, triggering instinctive fears: if you don't do something clever soon, you're going to be miserable (or dead). Although it's possible to endure the big five simultaneously, a notion that quiets most complaints about life, surviving just one devastates most people for months.

Now imagine some relaxing events: reading a funny novel by the ocean or having beers with friends by a midnight campfire. They're activities with little risk and guaranteed rewards. We've done these things many times and know that others have done them successfully and happily in the past. These are the moments we wish we had more of. We work hard so we can maximize the amount of time spent on the planet doing these kinds of things.

Innovation conflicts with this desire. It asks for faith in something unknown over something known to be safe, or even pleasant. A truly innovative Thanksgiving turkey recipe or highway driving technique cannot be risk-free. Whatever improvement it might yield is uncertain the moment it is first tried (or however many attempts are needed to get it right). No matter how amazing an idea is, until proven otherwise, its imagined benefits will pale in comparison to the real, and unimagined, fear of change.

This creates an unfortunate paradox: the greater the potential of an idea, the harder it is to find anyone willing to try it (more on this in Chapter 8). For example, solutions for world peace and world hunger might be out there, but human nature makes it difficult to attempt them. The bigger the changes needed to adopt an innovation, the more fears rise.

> *There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries…and partly from the incredulity of mankind, who do not truly believe in anything new until they have had actual experience of it.*
> —Niccolo Machiavelli

Negative things innovators hear

Every creator hears similar criticisms to his ideas. While I don't have proof, I bet the first caveman who captured fire, the first Sumerian with a wheel, the first person to do anything interesting in any society in human history, heard one of the following after pitching his idea:

- This will never work.
- No one will want this.
- It can't work in practice.
- People won't understand it.
- This isn't a problem.
- This is a problem, but no one cares.
- This is a problem and people care, but it's already solved.
- This is a problem, and people care, but it will never make money.
- This is a solution in search of a problem.
- Get out of my office/cave now.

Sometimes very smart people say these things. Ken Olsen, founder of the Digital Equipment Corporation, said in 1977, "There is no reason anyone would want a computer in their home." The leading art critics in France, in response to the opening of the Eiffel Tower, made comments like, "[That] tragic lamp post springing up from its bowels…[is] like a beacon of disaster and despair."[5] It took the British Navy, at the peak of their dominance in the 17th century, 150 years to adopt a proven remedy for scurvy.

Bo Peabody, serial entrepreneur, writes, "It's astounding the number of people who will tell you that you and your ideas are crazy. I have been thrown out of more than a thousand offices while building my six companies."[6] Remember, it's hard to know the future, and all great minds have failed to predict what would take off and what wouldn't. My point isn't to make fun of famous

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5   Olsen's quote is disputed by some, who claim he was for personal computers, but simply didn't see them running people's homes like they do on *Star Trek*. The quote on Eiffel's work is retold in John H. Lienhard, *The Engines of Our Ingenuity* (Oxford University Press, 2006), 186.

6   From *Lucky or Smart*, 28.

people for being wrong; instead, it's to point out that we're all wrong much of the time (see Figure 4-1).

Figure 4-1. Many critics demanded that the Eiffel Tower be torn down when it was built. Today, it's one of the most popular attractions in Paris.

Experienced innovators anticipate these criticisms. They prepare refutations or preempt them, as in, "Who would want electricity in their homes? Let me tell you who…"[7] But even with preparation,

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[7] Edison was a shameless promoter of electricity, crossing moral and ethical lines. He created the first electric chair to demonstrate that his competitors' designs were unsafe, unlike his (which wasn't true). Matthew Josephson, *Edison: A Biography* (McGraw-Hill, 1959), 348–349.

charm, and amazing ideas, convincing people to see an idea in the same way its creator sees it is difficult. Most have little interest in having their minds changed, something that's hard to remember when you've spent your life savings, or an entire weekend, killing yourself to invent something. This gap—the difference between how an innovator sees her work from how it's seen by others—is the most frustrating challenge innovators face. Creators expect to be well received. They look at accepted innovations and the heroes who delivered them and assume their new innovations will be treated the same way (see Figure 4-2). But no matter how brilliant an idea is, the gap exists. Until the innovation is accepted, it will be questioned relentlessly.
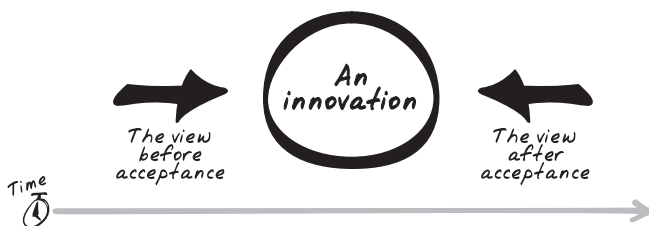
Figure 4-2. Innovators know of other innovations only after the fact, and they are surprised when their ideas are treated differently from the accepted innovations of the past.

Many innovators give up when they learn ideas—even with dazzling prototypes or plans in hand—are only the beginning. The challenges that follow demand skills of persuasion more than brilliance. As Howard H. Aiken, a famous inventor, said, "Don't worry about people stealing your ideas. If your ideas are any good, you'll have to ram them down people's throats."[8] Although beating up people to convince them rarely works, Aiken's point holds: people are unlikely to be as interested in your ideas as you are.

The observation many would-be innovators never make is that most criticisms are superficial. The spoken questions only hint at the real concerns. Responding to superficial comments is a loser's game; persuading demands mapping criticisms to deeper issues.

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[8] *http://en.wikiquote.org/wiki/Howard_H._Aiken.*

All of the negative comments listed earlier can be mapped to one or more of the following perspectives:

- **Ego/envy:** I can't accept this because I didn't think of it, or I think I'll look weak if I say yes.
- **Pride and politics:** This makes me look bad.
- **Personal:** I don't like you, so I will never support your idea.
- **Fear:** I'm afraid of change.
- **Priority:** I have 10 innovative proposals but resources for one.
- **Sloth:** I'm lazy, bored, and don't want to think or do more work.[9]
- **Security:** I may lose something I don't want to lose.
- **Greed:** I can make money or build an empire if I reject this idea.
- **Consistency:** This violates my deeply held principles (no matter how absurd, outdated, or ridiculous they are).

The effect of these feelings, whether justified or irrational, is the same. They're just as real in the mind of the person feeling them as anything else. If your boss feels threatened by a proposal—even if those reasons seem entirely paranoid or delusional to you—those feelings will define his behavior in response to new ideas. If those feelings are strong, it's easy for him to use the comments above to reject proposals for even the greatest ideas. If the innovator defends only the superficial and makes no attempt to persuade the deeper feelings to change, or find ways to recast the innovation so that those feelings become positive, she will fail to get the support she needs.

For example, when Galileo claimed the sun was the center of the solar system, he faced persecution from the Church and the Western world for reasons listed above. It wasn't the idea itself that caused the outrage—it was how that idea made them feel. They didn't care about what was at the center of the solar system. Galileo would have been in similar trouble had he suggested the earth rotated around a purple dragon or a half-eaten sandwich. They weren't upset about the details of his theory; they were

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[9] Related quote: "Most people would rather die than think; in fact, they do so."
     —*Bertrand Russell*

angry that anyone would advocate a theory different from the one they believed in (of course, making fun of the Pope didn't help any).[10] It was the principle of the thing, as well as how it questioned their sense of order—two common reasons for rejecting ideas that have nothing to do with the idea itself.

This is the magic double-secret principle: innovative ideas are rarely rejected on their merits; they're rejected because of how they make people feel. If you forget people's concerns and feelings when you present an innovation, or neglect to understand their perspectives in your design, you're setting yourself up to fail.

The innovator's dilemma explained

Earlier, I asked you to imagine inventing the telephone. Did you like that? Well, you'll like this even more, as this scenario has a surprise ending.

Imagine it's 1851, and you're sick and tired of waiting for the Pony Express to deliver important messages. You happen to meet a Mr. Morse and buy into his idea for using copper wire to send instant messages over great distances. Your friends laugh, telling you to get a real job because wires are silly things for grown men to play with. At great financial risk, you build the first cross-country cables in the U.S., and they work, changing the world. Your organization thrives for years; the nation is communicating, for a price, over your cutting-edge digital communication network. Wealthy and famous, you soon find attractive people throwing themselves and their money at you. But you're not finished: in a fit of innovation, you create the first stock ticker in 1866, give the nation its first standardized time service, and revolutionize the financial world with money transfers—allowing people to send cash thousands of miles across the country in seconds.

In the middle of your glory, as your rise to innovation fame reaches untold heights, a young man visits you. He holds an odd machine in his hands. He claims it will replace everything, especially all the things you've struggled all your life to build. He's young, arrogant,

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[10] In short, when Galileo wrote *Dialogue Concerning the Two Chief World Systems*, he put quotes from Pope Urban VIII into the mouth of his character Simplicio, a fool who is ridiculed for rejecting heliocentricism. See James Reston, *Galileo: A Life* (Beard Books, 2000).

and dismissive of your achievements. How long would you listen before you threw a telegraph at him? Could you imagine, given all you'd built, that something as simple as his clunky wooden box would replace everything you know? Or would you have the guts to give up the innovations you'd made and put everything behind the unknown?

This challenge of mind is known as the *innovator's dilemma*. The face-off between Western Union and Alexander Graham Bell (dramatized but roughly accurate in my telling) has been played out for centuries, with the captains of one aging innovation protecting their work from the threat of emerging ideas. The concept is well described in Clayton M. Christensen's book *The Innovator's Dilemma*, which provides hearty business examples of faith in the past, blinding smart people from the innovations of the future.[11]

It's both a psychological and economical phenomenon: as people and companies age, they have more to lose. They're not willing to spend years chasing dreams or to endanger what they've worked so hard to build. Attitudes focused on security, risk aversion, and optimization of the status quo eventually become dominant positions, and even become organizational policy at companies that were once young, nimble, and innovative. For these reasons, it's rare in art, music, writing, business, and every single creative pursuit for innovators to sustain that role throughout their lives. It's not that their talent wanes, it's more that their interests change. Having succeeded, their strongest desire is not to find new ideas to conquer, but to protect the success they've already earned.

Frustration + innovation = entrepreneurship?

The last 30 years have seen an amazing wave of innovation at the intersection of technology and entrepreneurship.[12] Companies like Apple, Google, Microsoft, HP, and Yahoo! started as small groups who dismissed the well-worn path of convincing others

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[11] Clayton M. Christensen, *The Innovator's Dilemma* (Harvard Business School Press, 2003).

[12] This power combo has been a phenomenon since the early days of the Industrial Revolution, when the first steam engines, factories, and mining systems were pioneered by entrepreneurial technologists. See Arnold Pacey, *The Maze of Ingenuity* (MIT Press, 1992).

and chose instead to realize ideas on their own. These start-up ventures were born out of the frustration of failing to make innovation happen in larger, established businesses. Had the founders of these companies found positive responses from corporations, history might be different. Frustration with people in power is a perennial complaint among creative minds: Michelangelo and da Vinci were infuriated by their employers' limited ambitions and their peers' conservative natures, in the same way creative people are today.[13]

Innovators rarely find support within mainstream organizations, and the same stubbornness that drives them to work on problems others ignore gives them the strength necessary to work alone. This explains the natural bond between breakthrough thinkers and new companies: innovative entrepreneurs not only have the passion for new ideas, they also have the conviction to make sacrifices that scare established companies.

The risks for an individual focusing 100% of his resources on a crazy idea are small: it's one life. But for an organization of 500 or 10,000 people, the risks of betting large on a new idea are high. Even if the idea pays off, the organization will be forced to change, causing fears and negative emotions to surface from everyone invested in the success of the previous big idea. Of course, some corporations are so large that they can take great risks: they can lose $20 million on an experiment and survive. But these efforts fail so often that it's possible that having less to lose works against innovation, compared to scrappy bootstrapped efforts led by people with everything at stake.

But as rosy as it sounds, the entrepreneur, whether he's wealthy or happily subsisting on ramen noodles,[14] must eventually convince one group of people—customers—of the merit of his ideas. And if he doesn't have enough money to support his new ideas, or his family refuses to eat canned chili for the third straight month, he'll need to

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[13] However, the major difference between the 15th century and the present day is opportunity. In Europe back then, if you had an idea for a cathedral design or siege weapons (hot technologies of the day), you were dependent on the one organization that could afford your services: the Church. But software programmers in the late 20th century and beyond not only have many patrons, they have the means to build their dreams themselves.

[14] For a trifecta of innovation, see Tadashi Katoh and Akira Imai, *Project X—Nissin Cup Noodle* (Digital Manga Publishing, 2006). It's a great read—in graphic-novel form—of how the office staple of noodles-in-a-cup was invented.

convince a second group—investors. As far as we know, both groups are human beings (though some debate the DNA of venture capitalists) and have the same emotional responses listed previously.

How innovations gain adoption: the truth about ideas before their time

One frequent saying in innovation circles is that an idea is "ahead of its time." What a strange phrase. How can an idea be ahead of its time? How can anything be ahead of its time? It makes little sense. What people mean when they say this is one of two things: they think the idea is cool but not necessarily good, or they think someday in the future a similar idea will be popular. But it's faint praise. How often do the things we imagine in the future ever come to be? Personal rocketships? Cars that fly? Nuclear-powered everything? The odds of cool ideas from sci-fi movies gaining adoption are low, and it's not much of a compliment to have something labeled "ahead of its time."[15] People don't slave away on insanely difficult work, sacrificing the pleasures of life, with the singular hope that, on their deathbeds, after everything they've done has been ignored, they will be told they were "ahead of their time." To be told your idea is ahead of its time is typically innovation pity, not praise, unless that was your actual goal.

But more importantly for us, this phrase exposes myths about how innovations do gain adoption in the world. First, it assumes technology progresses in a straight line (as covered in Chapter 2). To be ahead of its time implies that an idea *has* a time, marked in red at the universal innovation headquarters, waiting for people to catch up to it: an entirely inaccurate, innovation-centric view of how people live.

In *Diffusion of Innovations*, Everett M. Rogers writes:

> *Many technologists think that advantageous innovations will sell themselves, that the obvious benefits of a new idea will be widely realized by potential adopters, and that the innovation will therefore diffuse rapidly. Unfortunately, this is very seldom the case. Most innovations in fact diffuse at a surprisingly slow rate.*[16]

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[15] Notice I said movies, not sci-fi books. Films are visual media and choose technologies that look good or have dramatic value, not necessarily things that solve important problems, have progressive value, or obey the laws of physics.

[16] Everett M. Rogers, *Diffusion of Innovations* (Free Press, 2003), 7.

The book takes an anthropological approach to innovation, suggesting that new ideas spread at speeds determined by psychology and sociology, not the abstract merits of those new ideas. This explains the mysteries of great innovations that fail and bad ideas that prevail; there are more significant factors than the ones inventors focus on. Technological prowess matters less than we think in the diffusion of innovation.

Rogers identifies five factors that define how quickly innovations spread; they belong in every innovator's playbook. Roughly summarized and loosely interpreted, they include:

1. **Relative advantage**. What value does the new thing have compared to the old? This is perceived advantage, determined by the potential consumer of the innovation, not its makers. This makes it possible for a valueless innovation—from the creator's perspective—to gain acceptance, while more valuable ones do not. Perceived advantage is built on factors that include economics, prestige, convenience, fashion, and satisfaction.

2. **Compatibility**. How much effort is required to transition from the current thing to the innovation? If this cost is greater than the relative advantage, most people won't try the innovation. These costs include people's value systems, finances, habits, or personal beliefs. Rogers describes a Peruvian village that rejected the innovation of boiling water because of cultural beliefs that hot foods were only for sick people. You could argue all you wanted about the great benefits of boiling water, but if a religious or cultural belief forbids it, you're wasting your breath. Technological compatibility is only part of what makes an innovation spread: the innovation has to be compatible with habits, beliefs, values, and lifestyles.

3. **Complexity**. How much learning is required to apply the innovation? If a box of free, high-quality, infinite battery-life cell phones (and matching solar-powered cell towers) mysteriously appeared in 9th-century England, usage would stay at 0%, as the innovation requires a jump in complexity that would terrify people ("They're witches' eggs—burn them!"). The smaller the perceived conceptual gap, the higher the rate of acceptance.

4. **Trialability**. How easy is it to try the innovation? Tea bags were first used as giveaways so people could sample tea

without buying large tins, radically improving the trialability of brewed tea.[17] Samples, giveaways, and demonstrations are centuries-old techniques for making it risk-free to try new ideas. This is why Gap lets you try on clothes, and the Honda dealership lets anyone with a pulse test-drive a car. Many websites today have freemium services, where the basics cost nothing but you pay for extras. The easier it is to try, the faster innovations diffuse.

5. **Observability**. How visible are the results of the innovation? The more visible the perceived advantage, the faster the rate of adoption, especially within social groups. Fashion fads are a great example of highly observable innovations that have little value beyond their observability. Advertising fakes observability, as many ads show people using a product—for example, drinking a new brand of beer while all kinds of wonderful things are happening. Many technologies have limited observability, say, software device drivers, compared to physical products like mobile phones and trendy handbags, which are highly visible when socializing.

This list clarifies why the speed at which innovations spread is determined by factors that are often ignored by their creators. They grow so focused on creating things that they forget that those innovations are good only if people can use them. While there's a lot to be said for raising bars and pushing envelopes, breakthroughs happen for societies when innovations diffuse, not when they remain forever "ahead of their time."

This list is a scorecard for learning from past innovations, as well as a tool for improving diffusion of innovations in the present. The key is not to trivialize this list as bastardized marketing, as if these traits can be grafted to an innovation after it's finished, or simply pumped into sales literature and advertising (though those efforts rarely make the difference). Is it a successful innovation if it's purchased but ignored or bought and soon returned? A better way to think of the list is as attributes of the innovation itself.

And since these factors vary from culture to culture, some innovations gain acceptance in surprising ways. There is no uniformity in

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[17] Joel Levy, *Really Useful: The Origins of Everyday Things* (Firefly Books Ltd, 2002).

progress around the world; innovations may be adopted by one culture or nation decades before another. As writer William Gibson quipped, "The future is already here—it's just not evenly distributed."[18] And no innovation is immune; everything new passes through culture in unpredictable ways and, given the limits of human nature, always will.

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[18] *http://en.wikipedia.org/wiki/William_Gibson.*

Creative thinking hacks

Each one of us possesses everything necessary to be more creative. The problem is that schools, parents, and workplaces tend to reward us for following rules. It's something quite different to learn to ask our own questions and seek our own answers (which is one simple definition of creative thinking). This chapter is a high-speed, condensed version of a course I taught at the University of Washington on how anyone, with some honest effort, can easily become more creative at any task at any time.

Kill creative romance

Like most media today, this chapter starts with violence—and an unnecessary exclamation point! Close your eyes, and imagine the most amazing sword ever made. Now, with it in hand, attack every creative legend you've ever heard. (We've romanticized da Vinci, Mozart, and Einstein into gods, minimizing the ordinary aspects of their lives so intensely that their mothers wouldn't recognize them in the legends we tell.) Next, using your sword's mint-scented flamethrower attachment, set fire to childhood tales of Isaac Newton and the apple, Benjamin Franklin and the lightning kite, and Edison and the lightbulb. Think of other similar legends you've heard, even if they were not mentioned in this book. These popular tales of creativity are deceptive at best, wild lies at worst. They're shaped to placate the masses, not to inform or help people actually interested in doing creative work. Slash each and every one with your sword, throw a dozen napalm-coated hand grenades in for good measure, and watch your old, broken-down view of creativity go up in flames. Dance around the smoldering ruins! Roast marshmallows over the still-warm remains of your creative fulminations! The fun begins now: free yourself. Feel like you did when you were young, without any preconceptions over what is or is not creative.

In this new landscape, plant the following simple definition: *an idea is a combination of other ideas*. Say it five times out loud. Say it to your cat. Yell it out your car window at strangers waiting for the bus. Every amazing creative thing you've ever seen or idea you've ever heard can be broken down into smaller ideas that existed before. An automobile? An engine and wheels. A telephone? Electricity and sound. Reese's Peanut Butter Cups? Peanut butter and chocolate. All great creative ideas, inventions,

and theories are composed of other ideas. Why should you care? Because if you want to be a creator instead of a consumer, you must view existing ideas as fuel for your mind. You must stop seeing them as objects or functional things—they are combinations of ingredients waiting to be reused.

Combinations

Cooking is a brilliant analogy for creativity: a chef's talents hinge on his ability to bring ingredients together to create things. Even the most inspired chef in history did not make bacon appear by mere concentration, nor suggest to the divine forces that a ripe tomato should be on the list of evolution's desired outcomes. Faith in the creativity-as-combinations view of the world helps creators in many ways. It means that if at any time you feel uncreative, the solution is to look more carefully at the combinations available to you, or to break apart something to see how it's made. Increasing creativeness doesn't require anything more than increasing your observations: become more aware of possible combinations. Here's a test: quickly pick two things in front of you, say, this book and your annoying, smelly friend Rupert. Now close your eyes and imagine different ways to combine them.

If you're stuck, here are three:

1. Rupert with a table of contents
2. An annoying, smelly book about innovation
3. Reading a book on, or making one out of, Rupert's face

Now while these combos might not be useful, good, or even practical, they're certainly creative (and if you think these are stupid and juvenile, you have confused bad taste with lack of creativity). Adding a third element, perhaps a gallon of cappuccino, might yield even more interesting combinations (a caffeine-overdosed, smelly book infused with Rupert's annoying personality).

Over time, creative masters learn to find, evaluate, and explore more combinations than other people. They get better at guessing which combinations will be more interesting, so their odds improve. They also learn there are reusable combinations, or patterns, that can be used again and again to develop new ideas or modify existing ones. For example, musicians throughout history have reused melodies, chord progressions, and even entire song

structures. The national anthem of the United States was based on the tune of an old British drinking song.[1] The Disney film *The Lion King* is a retelling of Shakespeare's *Hamlet*. Shakespeare was likely influenced by the early Greek tragedies. Study any creative field, from comedy to cooking to writing, and you'll discover patterns of reuse and recombination everywhere. It's an illusion that when an artist makes a painting or an author writes a novel it appeared magically into her hands from out of nowhere. Everything comes from somewhere, no matter how amazing or wonderful the thing is. The *Mona Lisa* was not the first portrait any more than the Destiny's Child song "Survivor" was the first four-minute R&B hit.

I'm not suggesting you steal something someone else made and put your name on it. That's theft, and a fairly uncreative kind of theft at that. Instead, the goal is to recognize how much in the world there is to borrow from, reuse, reinterpret, use as inspiration, or recombine without breaking laws or violating trust. Every field has its own rules and limitations, but creative fields are more liberal than you'd expect.[2]

Inhibition

We're afraid. We're afraid of the dark, of our parents, and what our parents do in the dark. Our tiny, efficient brains do their best to keep us from thinking about things we fear or don't understand. This is good for survival but bad for combination making. We shut down the pursuit of many combinations because of predictions we make about what the result will be. But remember: we suck at prediction. Lewis Thomas (see Chapter 7) mentioned the best sign of progress in his research lab was laughter, and laughter often comes from surprise.

Many of us who have the potential to be creative fail only because we struggle to turn off our filters and fears. We don't want to do anything that could yield an unexpected result. We seek external

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[1] *http://en.wikipedia.org/wiki/The_Star-Spangled_Banner*.

[2] An interesting challenge to this claim is the issue of sampling in music. How much of one song can another artist sample and reuse? One second? Five? None? See the excellent film *Copyright Criminals*, which explores this question from many different perspectives (and there's lots of good music in the film, too): *http://www.pbs.org/independentlens/copyright-criminals/film.html*.

validation from our teachers, bosses, family, etc., but creativity usually depends on internal validation. We have to judge for ourselves whether our ideas are interesting or useful.

One way to think of creative people is that they have more control over their fears—or less fear of embarrassment. They're not necessarily smarter or more capable of coming up with good ideas, they simply filter out fewer ideas than the rest of us. Creativity has more to do with being fearless than intelligent or any other adjective superficially associated with it. This explains why many people feel more creative when drinking, on drugs, or late at night: these are all times when their inhibitions are lower, or at least altered, and they allow themselves to see more combinations of things than they do normally.

Environment

Creativity is personal. No book or expert can dictate how you can be more creative. You have to spend time paying attention to yourself: when do ideas come easiest to you? Are you alone? With friends? In a bar? At the beach? Are there times of day when you're most relaxed? Is there music playing? Start paying attention to your rhythms and then construct your creative activities around them. To get all Emersonian on you, this is called self-knowledge:[3] you can't be productive as a creator if you're not paying attention to your own behavior and learning how best to cultivate the unique wonder in this universe that is you. Nothing is more counterintuitive than trying to be yourself by being like other people. It doesn't work that way—no book, course, or teacher can give this to you.

To help you figure this out, you need to experience different ways of working, and pay attention to which ones best suit you. They might be unexpected, not fitting into your framework (i.e., filters) for how creative work should be done, or what's appropriate for a 42-year-old middle manager to do. I learned that I tend to be most creative late at night. I don't find it convenient, and neither does my family, but I've recognized it to be true. If I want to maximize my creativity, I will spend hours working late at night. Each of us

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[3] Read Ralph Waldo Emerson's essay "Self-Reliance" at *http://www.emersoncentral.com/selfreliance.htm*.

responds to environmental conditions differently. Half the challenge is experimenting to find out which ones work best; the other half is honoring them despite how inconvenient or unexpected they might be.

Persistence

Being creative for kicks is easy. But if you want to be creative on demand you must develop helpful habits, and that's about persistence. You won't always find interesting combinations for a problem right away, and identifying fears and working through them is rarely fun. At some point, all creative tasks become work. The interesting and fun challenges fade, and the ordinary, boring, inglorious work necessary to bring the idea to the world becomes the reality. Study the histories of great creators, and you'll find a common core of willpower and commitment as their driving force. Van Gogh, Michelangelo, and Mozart worked every day. Edison, Hemingway, and Beethoven, as well as most legendary talents, outworked their peers. Forget brilliance or genetics, the biggest difference between the greats and us was their dedication to their craft. Each of the names we know had peers who were just as talented, or more so, but twice as lazy. They consistently gave up before their projects were finished. Want to guess why we don't know their names? The world can only care about ideas that are shared.

When I give lectures on creative thinking, I often ask who in the audience has had an idea for a business, movie, or book. Most of the audience raises their hands. I then ask how many people have done any work at all on these ideas, and most of the audience drops their hands. That tells the whole story: ideas are lazy. They don't do anything on their own. If you aren't willing to do the ordinary work to make the idea real, the problem isn't about creativity at all.

When an idea is fully formed in your head, there's no escaping the fact that for the idea to change the world, it has to leave your brain—a journey that only happens with hard work and dedication. Writing proposals, sketching designs, pitching ideas: it's all work you know how to do. But how far are you actually willing to go to make your idea real?

Creative thinking hacks

Here are some clever tactics for applying this advice:

- **Start an idea journal**. Write down any idea that pops in your mind at any time. Don't be inhibited: anything goes. You will never have to show anyone else this journal, so there should be no filters—it's safe from judgment. This should help you find your own creative rhythms, as over time you can note what times of day you're more creative. I recommend a paper journal so you can doodle and write freely, but digital journals also work. Whenever you're stuck, flip through your journal. You're bound to find an old idea you've forgotten about that can be used toward the problem you're trying to solve.

- **Give your subconscious a chance**. The reason ideas come to you in the shower is that you're relaxed enough for your subconscious to surface ideas. Make this easier: find time to turn your mind off. Run, swim, bike, have sex, do something that's as far from your creative problem as possible. Afterward, you might just find that the problem you struggled with all morning isn't as hard, or that you have a new idea for approaching it.

- **Use your body to help your mind**. This is entirely counterintuitive to your logical mind, but that's exactly why it's so likely to work. In John Medina's *Brain Rules*, he explains how physical activity, even for people who don't like it, has positive effects on brain function. The theory is that for most of our evolutionary history, the acts of physical exertion and maximum brain function were correlated (think how creative you have to be when being chased by tigers). If your body is active, your mind will follow. Einstein and Bohr used to debate physics while going for long walks—they both believed they thought better when moving around. This might be true for you.

- **Inversion**. If you're stuck, come up with ideas for the opposite of what you want. If your goal was to design the best website for your team, switch to designing the worst one you can imagine. Five minutes at an inverted problem will get your frustrations out, make you laugh, and likely get you past your fears. Odds are high you'll hit something so horribly bad

that it's interesting, and in studying it, you'll discover good ideas you would never have found any other way.

- **Switch modes**. Everyone has a dominant way of expressing ideas: sketching, writing, talking. If you switch the mode you're working in, different ideas are easier to find, and your understanding of a particular problem will change. This is both a way to find new ideas and to explore an idea you're focused on. Working on paper, rather than computers, can make this easier because you can doodle in the margins (a form of mode switching), something you can't really do with a mouse and a keyboard. Or, try explaining your problem to a child, or to the smartest person you know, which will force you to describe and think about the problem differently.

- **Take an improvisational comedy class**. This will be easier and less painful than you think. These classes, offered for ordinary people by most improv comedy groups, are structured around simple games. You show up, play some games, and slowly each week you learn how to pay more attention to the situations the games put you in, as well as how to respond to them. You will eventually become more comfortable with investing in combinations without being sure of the outcome.

- **Find a partner**. Some people are most creative when they're with creative friends. Partnering up on a project, or even being around other creative people who are working on solo projects, keeps energy levels high. They will bring a new perspective to your ideas, and you will bring a new perspective to theirs. It also gives you a drinking buddy when things go sour.

- **Stop reading and start doing**. The word *create* is a verb. Be active. Go make things. Make dinner, make a drawing, make a fire, make some noise, but make. If all your attempts at being creative consist of passively consuming, no matter how brilliant what you consume is, you'll always be a consumer, not a creator. An entire culture of tinkerers and makers is out there, with projects and tools to help you get started. Check out *http://makezine.com* and *www.readymade.com*, two sites waiting to show you the way.

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Scott Berkun

How to figure out what to do

Few people agree on how to plan projects. Often, much of the time spent during planning is getting people to agree on how the planning should be done. I think people obsess about planning because it's the point of contact for many different roles in any organization. When major decisions are at stake that will affect people for months or years, everyone has the motivation to get involved. There is excitement and new energy but also the fear that if action isn't taken, opportunities will be lost. This combination makes it all too easy for people to assume that their own view of the world is the most useful. Or worse, that it is the only view of the world worth considering and using in the project-planning process.

> **"The hardest single part of building a software system is deciding what to build. No other part of the conceptual work is as difficult in establishing the detailed technical requirements, including the interfaces to people, to machines, and to other software systems. No other part of the work so cripples the results if done wrong. No other part is more difficult to rectify later. Therefore, the most important function that the software builder performs for the client is the iterative extraction and refinement of the product requirements."**
>
> *—Fred Brooks*

It's not surprising then that the planning-related books in the corner of my office disagree heavily with each other. Some focus on business strategy, others on engineering and scheduling processes (the traditional focus of project planning), and a few on understanding and designing for customers. But more distressing than their disagreements is that these books fail to acknowledge that other approaches even exist. This is odd because none of these perspectives—business, technology, customer—can ever exist without the others. More so, I'm convinced that success in project planning occurs at the intersections in these different points of view. Any manager who can see those intersections has a large advantage over those who can't.

So, this chapter is about approaching the planning process and obtaining a view of planning that has the highest odds of leading to success. First I need to clarify some vocabulary and

concepts that different planning strategies use (it's dry stuff, but we'll need it for the fun chapters that follow). When that is out of the way, I'll define and integrate these three different views, explore the questions good planning processes answer, and discuss how to approach the daily work to make planning happen. The following chapters will go into more detail on specific deliverables, such as vision documents (Chapter 4) and specifications (Chapter 7).

Software planning demystified

A small, one-man project for an internal web site doesn't require the same planning process as a 300-person, $10 million project for a fault-tolerant operating system. Generally, the more people and complexity you're dealing with, the more planning structure you need. However, even simple, one-man projects benefit from plans. They provide an opportunity to review decisions, expose assumptions, and clarify agreements between people and organizations. Plans act as a forcing function against all kinds of stupidity because they demand that important issues be resolved while there is time to consider other options. As Abraham Lincoln said, "If I had six hours to cut down a tree, I'd spend four hours sharpening the axe," which I take to mean that smart preparation minimizes work.

Project planning involves answering two questions. Answering the first question, "What do we need to do?" is generally called requirements gathering. Answering the second question, "How will we do it?" is called designing or specifying (see Figure 3-1). A requirement is a carefully written description of a criterion that the work is expected to satisfy. (For example, a requirement for cooking a meal might be to make inexpensive food that is tasty and nutritious.) Good requirements are easy to understand and hard to misinterpret. There may be different ways to design something to fulfill a requirement, but it should be easy to recognize whether the requirement has been met when looking at a finished piece of work. A specification is simply a plan for building something that will satisfy the requirements.
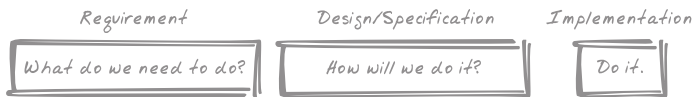
FIGURE 3-1. *An insanely simple but handy view of planning. If you don't know what you need to do, it's too early to figure out how to do it.*

These three activities—requirements gathering, designing/specifying, and implementing—are deep subjects and worthy of their own books (see the Annotated Bibliography). I'll cover the first two from a project-level perspective in the next few chapters, and implementation will be the focus later on in the book (Chapters 14 and 15).

Different types of projects

Several criteria change the nature of how requirements and design work are done. I'll use three simple and diverse project examples to illustrate these criteria:[1]

- **Solo-superman.** In the simplest project, only one person is involved. From writing code to marketing to business planning to making his own lunch, he does everything himself and is his own source of funding.

- **Small contract team.** A firm of 5 or 10 programmers and 1 manager is hired by a client to build a web site or software application. They draft a contract that defines their commitments to each other. When the contract ends, the relationship ends, unless a new contract/project is started.

- **Big staff team.** A 100-person team employed by a corporation begins work on a new version of something. It might be a product sold to the public (a.k.a. shrink-wrap) or something used internally (internalware).

These three project types differ in team size, organizational structure, and authority relationships, and the differences among them establish important distinctions for how they should be managed. So, while your project might not exactly match these examples, they will be useful reference points in the following sections.

How organizations impact planning

With the three project types in mind, we can examine the basic criteria for project planning. At any time in a project, there are basic questions that everyone should know the answers to. You might not always like the answers, but you and your team should know what they are. Most planning frustrations occur when there's disagreement or ignorance about these issues.

- **Who has requirements authority?** Someone has to define the requirements and get them approved by the necessary parties (client or VP). In the solo-superman case, this is easy: superman will have all of the authority he wants. On a contract team, there will be a client who wants strong control over the requirements and possibly the design. Lastly, a big staff team may have committees or other divisions in the corporation who will need to be served by the work (and whose approval in some way is required). There may be different people with high-level requirements authority ("It will be a sports truck") and low-level requirements authority ("It will get 20 mpg and have 4-wheel drive").

- **Who has design authority?** Similar to requirements, someone has to define the design of the work itself. The design is different from the requirements because there are always many different possible designs to fulfill a set of requirements. Designs, also like requirements, are often negotiated between two or more parties. One person or team might be responsible for driving the design process and developing ideas (designer), and another team provides guidance and feedback on the first party's work (VP). Note that because design skill is distributed in the universe independent of political power, people granted design authority might not be people with much design talent.

- **Who has technical authority?** Technical authority is defined by who gets to choose which engineering approaches are used, including programming languages, development tools, and technical architecture. Many of these decisions can impact requirements, design, and budget. The difference between technical decisions and design decisions is subtle: how something behaves and looks often has a lot to do with

how it's constructed. In some organizations, technical author-
ity supercedes requirements and design authority. In others,
it is subservient to them. In the best organizations, there is a
collaborative relationship between all the different kinds of
authority.

- **Who has budget authority?** The ability to add or remove
  resources to a project can be independent from other kinds of
  authority. For example, in the contract team situation, the
  team might have the power to define the requirements and
  design, but they might need to return to the client each time
  they want more money or time.

- **How often will requirements and designs be reviewed, and
  how will adjustments be decided?** The answer depends
  heavily on previous questions. The more parties involved in
  requirements, design, and budgets, the more effort will need
  to be spent keeping them in sync during the project. As a rule
  of thumb: the less authority you have, the more diligent you
  need to be about reviewing and confirming decisions, as well
  as leading the way for adjustments.

Although I've identified different kinds of authority, it's possible
for one person to possess several or all of them. However, most
of the time, authority is distributed across team leaders. The
more complex the distribution of authority is, the more
planning effort you'll need to be effective. In Chapter 16, I'll
cover how to deal with situations where you need more
authority than you have. For now, it's enough to recognize that
planning involves these different kinds of power.

Common planning deliverables

To communicate requirements, someone has to write them
down. There are many ways to do this, and I'm not advocating
any particular method. What matters most is that the right
information has been captured, the right people can easily
discuss it, and good commitments are made for what work
should be done. If the way you document requirements does all
this for you, great. If it doesn't, then look for a new method
with these criteria in mind.

For reference purposes, I'll mention some of the common ways to document requirements and planning information. If nothing else, knowing the common lingo helps translate between the various methods used by different organizations. You'll find some teams document the requirements informally: "Oh, requirements…just go talk to Fred." Others have elaborate templates and review procedures that break these documents into insanely small (and possibly overlapping) pieces owned by different people.

- **Marketing requirements document (MRD).** This is the business or marketing team's analysis of the world. The goal is to explain what business opportunities exist and how a project can exploit those opportunities. In some organizations, this is a reference document to help decision makers in their thinking. In other organizations, it is the core of project definition and everything that follows derives strongly from it. MRDs help to define the "what" of a project.

- **Vision/scope document.** A vision document encapsulates all available thinking about what a project might be into a single composition. If an MRD exists, a vision document should inherit and refer heavily to it. A vision document defines the goals of a project, why they make sense, and what the high-level features, requirements, or dates for a project will be (see Chapter 4). Vision documents directly define the "what" of a project.

- **Specifications.** These capture what the end result of the work should be for one part of the project. Good specifications are born from a set of requirements. They are then developed through iterative design work (see Chapters 5 and 6), which may involve modifying/improving the requirements. Specs are complete when they provide a workable plan that engineering can use to fulfill requirements (how much detail they must have is entirely negotiable with engineering). Specifications should inherit heavily in spirit from vision documents. Specifications define the "how" of a project from a design and engineering perspective.

- **Work breakdown structure (WBS).** While a specification details the work to be done, a WBS defines how a team of engineers will go about doing it. What work will be done first? Who will do it? What are all of the individual pieces of work and how can we track them? A WBS can be very simple (a spreadsheet) or very complex (charts and tools), depending on the needs of the project. Chapters 7 and 13 will touch on WBS-type activities. WBS defines the "how" of a project from a team perspective.

Approaching plans: the three perspectives

You may have noticed how each of the deliverables mentioned earlier represents one of two perspectives on the project: business or engineering. On many projects, these two views compete with each other. This is a fundamental planning mistake. Planning should rarely be a binary, or either/or, experience. Instead, it should be an integration and synthesis of what everyone can contribute.

To make this happen, a project manager must recognize that each perspective contributes something unique that cannot be replaced by more of something else (i.e., no amount of marketing strategy will improve engineering proficiency, and vice versa). For good results, everyone involved in project planning must have a basic understanding of each perspective.

WARNING

The following coverage of planning is industrial strength. If you see questions or situations that don't apply because of the size of your team or scope of your project, feel free to skim or skip them. I don't expect that everything I cover here applies to any single project. However, I'm trying to provide value to you for not only this project, but also the next one and the one after that. There are many angles and questions here that will prove useful to you in the long run, even if some of it doesn't apply to what you're working on today.

The business perspective

The business view focuses on things that impact the profit and loss (P&L) accounting of an organization. This includes sales, profit, expenses, competition, and costs. Everyone should understand their P&L: it's what pays their salaries or their contracts. When engineering teams are unaware of how their business works, many decisions made by management will appear illogical or stupid. Thus, it's in the interest of whoever's responsible for business planning to help others understand their reasoning. In the tech sector, people with job titles like business analyst, marketing, business development, product planner, or senior manager represent the business perspective.

Some projects have multiple business perspectives. If you work for a firm contracted to build a database server, you have your firm's business interests to consider, as well as the business interests of the client you are serving (hopefully they are in line with each other). The intersection of these perspectives can get complicated; I'm going to keep it simple here and assume projects are of the big-staff variety. However, it should be easy to extrapolate the following questions to more complex situations.

A good business perspective means that the team has answers for the following questions:

- What unmet needs or desires do our customers have?

- What features or services might we provide that will meet those desires and needs?

- On what basis will customers purchase this product or service? What will motivate them to do so?

- What will it cost (people/resources)? Over what time period?

- What potential for revenue (or reduced organizational operating costs) does it have? Over what time period?

- What won't we build so that we can build this?

- Will it contribute to our long-term business strategy or protect other revenue-generating assets? (Even nonprofits or IT organizations have a business strategy: there are always bills to pay, revenue to obtain, or revenue-generating groups to support.)

- How will this help us match, outflank, or beat competitors?
- What are the market time windows that we should target for this project?

Those responsible for the business perspective take bold views of the importance of these questions. They believe that the answers represent the bottom line for the organization and should strongly influence project decisions.

However, the business view doesn't mean that all projects must be slaves to revenue. Instead, it evaluates projects based on their contributions to the business strategy. For example, a strategic project might be essential to the organization but never generate any revenue.

Marketing is not a dirty word

The most unfair criticism of business folks is that they are just "marketers," somewhat of a negative label in the tech sector. I think marketing gets a bad rap. In MBA terms, there are four Ps that define marketing: product, price, placement, and promotion. Defining the product and price is a creative process. The goal is to develop a product idea—sold for a profit—that matches the needs of the targeted customer. Research, analysis, and creative work are necessary in order to succeed. Placement, the third P, regards how customers will obtain the product (through a web site? the supermarket? the trunk of Fred's car?).

Finally, promotion—what marketing is often stereotyped to mean—is how to spread the positive word about the product to influential people and potential customers. Surprisingly, promotion is a small part of a business analyst or product manager's time (maybe 10–20%). So, marketing plans define much more than what the ads will look like or what promotional deals will be made. Also, note that the four Ps of marketing apply to almost anything. There is always a product (HR web site), a price (free), a placement (intranet), and a promotion (email) for it.

But when the business perspective is dealt with alone, it shows only one-third of what's needed. The quality of a product influences sales, but quality does not come from marketing.

Quality[2] comes from successfully designing and engineering something that satisfies real customer needs. A proposed business plan that centers itself on technological possibilities (rather than conjectures) will make for good business.

A project manager, who uses only one perspective and fails, might never understand what really went wrong. His tendency will be to work harder within the same perspective instead of widening the view.

The technology perspective

While I was studying computer science at Carnegie Mellon University, it was common to talk to professors and students about new products. We'd always focus on what components these new software products used and how they compared against what could have been. Value was implicitly defined as quality of engineering: how reliable and performant they were or how much of the latest technology they took advantage of. Generally, we thought everything sucked. Exceedingly few products stacked up to our critiques. We wondered why the marketplace was packed end to end with mediocrity and disappointment. We'd even invent geek conspiracy theories to explain the evil decisions, which we thought were made against engineering purity and thus made little or no sense to us. Often, we'd focus blame on the marketing departments of these companies[3] (not that many of us understood what marketers did). Even in my first few years in the industry, the same kinds of conversations took place again and again. Only then there was greater scrutiny because we were competing with many of the products or web sites that we talked about.

When we looked at the world, we saw technologies and their engineering merits only. We never understood why poorly engineered products sometimes sold very well or why well-engineered products sometimes failed to sell at all. We also noticed that engineering quality didn't always correlate with customer happiness. For these mysteries, we had two answers. First, it had something to do with the magic powers of evil marketing people. Second, we needed smarter customers. But we didn't think much about our conclusions. Instead, we went

back to writing code or finding other products to tear to shreds. I was able to see my view for what it was only after I'd listened to some smart marketers and some talented product designers.

The technology view places the greatest value on how things should be built. It's a construction and materials mindset. There is an aesthetic to it, but it's from the technology perspective, not from the customer's perspective. There is a bias toward the building of things, instead of understanding how, once created, those things will help the business or the customer. In the stereotypical engineering view, a database that satisfies the engineer's aesthetic is sufficient, even if no customer can figure out how to do anything with it, or it fails to meet its sales projections.

As critical as that last paragraph might sound, many important questions come from the technology view only:

- What does it (the project) need to do?

- How will it work? How will each of the components in it work?

- How will we build it? How will we verify that it works as it's supposed to?

- How reliable, efficient, extensible, and performant are the current systems or ones we are capable of building? Is there a gap between this and what the project requires?

- What technologies or architectures are readily available to us? Will we bet on any new technologies that will be available soon but are not available yet?

- What engineering processes and approaches are appropriate for this team and this project?

- What applicable knowledge and expertise do our people have? What won't they be working on to work on this project?

- How will we fill gaps in expertise? (Train/hire/learn/ignore and hope the gaps magically go away.)

- How much time will it take to build, at what level of quality?

The customer perspective

This is the most important of all three perspectives. Because the project is made to serve the customer (and perhaps serve the business, but only through serving the customer), it follows that the greatest energy should be spent on understanding who those customers are. This includes studying what the customers do all day, how they currently do it, and what changes or improvements would be valuable in helping them do what they do. Without this information, engineering and business are shooting in the dark.

But, sadly, the customer perspective is the weakest in many organizations. It generally receives the least staffing and budget support. There are fewer people in most organizations that have been trained in understanding and designing for customers than their business and technology counterparts. And even when customer experts are hired (such as user interface designers or usability engineers), they are often restricted to limited roles in the project decision-making process and are granted few requirements or little design authority.

In any case, the customer point of view is built from two different sources: requests and research. Requests are anything the customer explicitly asks for or complains about. This kind of information is valuable because the customer has the greatest motivation to identify these problems ("Yes, my computer explodes whenever I hit the spacebar"), but it is also problematic because, in most cases, customers are not designers. They often blur the distinction between problems that need to be solved and specific ways of solving them. They may explicitly ask for a feature, such as print preview, without describing the real problem (people throw away too much paper). If the project team can start by understanding the problem, there may be many ways to solve it that are cheaper or better than the feature requests. Even skilled designers often struggle at designing for themselves.[4]

There are two kinds of experts who understand customers and design for them: usability engineers and product designers. Usability engineers are experts in understanding how people work, and they provide metrics and research to help project

teams make good decisions from day one of project planning. Product designers, or interaction designers, are people trained in how to take that data and convert it into good designs for web sites or products. If your organization is fortunate enough to employ these fine folks, involve them early on. Ask them to be advocates for this point of view. If you're working without them, you are at a distinct disadvantage to your competitors. Consider hiring someone to consult and advise on where these efforts would be of the most value.

Without expert help, the project manager must make do on her own. This is possible, but because it's often the least interesting perspective for folks with engineering backgrounds and is least understood by senior management, it typically gets less support than the other points of view. Enough resources and seniority need to be invested in the customer perspective to balance out the technology and business ones. Otherwise, surprise: the customer perspective won't be credible and won't be heard.

The important questions from the customer view include:

- What do people actually do? (Not what we think they do or what they say they do.)

- What problems do they have trying to do these things? Where do they get stuck, confused, or frustrated?

- What do they need or want to do but aren't able to do at all?

- Where are the specific opportunities to make things easier, safer, faster, or more reliable for them?

- What design ideas for how to improve how the thing should work—in terms of what people actually do—have the most potential for improving the customer experience?

- How can those ideas be explored? What prototypes, sketches, or alternatives need to be investigated to help us understand the potential for the project?

- What core ideas and concepts should the project use to express information to users?

The magical interdisciplinary view

These three points of view always overlap each other. Every business consideration has technical and customer implications (which is the same for all of the other permutations). So, getting the best planning perspective requires laying out each view on equal footing and seeing where the similarities and differences are. Some decisions will need to be made that favor one perspective over another, but that shouldn't be done by accident. It should support an intelligent strategy derived from getting as much value from each perspective as possible.

By investing time in exploring all three perspectives, it's possible to see opportunities for smart strategic decisions. It might be possible to satisfy some of the top issues or goals from each of the three perspectives by defining a project targeted at where the three perspectives overlap. Those are areas that have the greatest potential value to the organization because one effort can simultaneously address business, technology, and customer goals.

Almost as important as its strategic planning value, using a Venn Diagram (like the one in Figure 3-2) can defuse perspective bias of engineers or marketers. It helps teams see overlapping points of view, rather than only competing ones. Early and often during project-planning discussions, this diagram or something like it (e.g., a diagram that includes a list of potential goals from each perspective) can be used to frame suggestions made by people who have bias toward one view of the project. When ideas are suggested, they can be mapped against this diagram to see how they contribute to all three perspectives. The PM plays a key role in making this happen, by proactively using his generalist nature to unify all three views into one.

One way to accomplish this is to establish early on that there will always be great technological ideas that do not benefit the business or the customer, as well as great ideas to help customers that are not viable for the business or possible with current technology. This gives everyone the power to identify one-dimensional ideas and call each other on them. It also generates respect across perspectives because everyone is forced
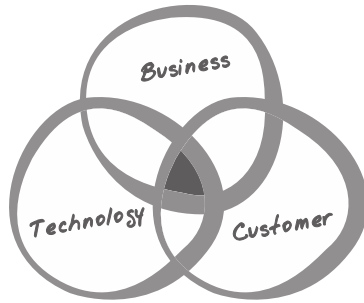
FIGURE 3-2. *The three perspectives.*

to realize that they need to collaborate with people who have knowledge they don't possess in order to be successful.

But if no effort is made to bring divergent points of view together, the conflicts are rarely addressed head on. Instead, project-planning meetings become battlefields for attacking and defending opinions based on these perspective lines (and not on the true merits of the ideas themselves). Often when I've consulted with project teams, the problem I was asked to help with had nothing to do with their ability to plan a project. Instead, there was an unresolved, or even unspoken, conflict of opinion about why one department—engineering or marketing, for example—is more important than the other. Their singular perspectives not only caused the problem but also made it impossible to see the cause of the problem.

Years ago, I was involved in one of these silly wars myself. I was the program manager for web-search features on Internet Explorer 4.0. Two business development people were assigned to us, and they were negotiating deals with the major search engines of the time (Excite, Yahoo!, Lycos, AltaVista, etc.). We argued with these business experts over design decisions, continually debating over what was best for the customer versus what was best for the business. We each believed that we held the authority (I spoke for the design/engineering staff, and they provided the business arguments). We argued on the same points for weeks, always debating the specific decisions and never stepping back to evaluate our hidden philosophies on what made for good products. Things got so bad that we brought in our group manager to help us reach a compromise.

I'm convinced a broader view of the world would have helped everyone involved. We were all so invested in our egos and beliefs that we were willing to spend tons of time fighting over tiny points, instead of working to understand all of the perspectives on what we were building. A better vision document could have helped, but that was impossible because the business challenges of the Internet were so new to the industry (circa 1997). However, had we been sharing each other's knowledge, instead of resisting it, we might have had a shot at finding a mutually beneficial compromise.

Bringing an interdisciplinary view to a project enables you to make choices that cut across the very boundaries that limit your competitors. It also gives you stronger arguments for any decision you choose to make. Instead of only claiming that a specific design will be easier to build, you can also say why marketing will find more opportunities to sell that design (provided, of course, that you're not just making up these claims). Sometimes, this will require you to make sacrifices. When you're looking for the best solutions, they won't always correspond to what you're good at doing, or which ideas you personally prefer. But if you're able to make those sacrifices, you gain the conviction and sincerity required to get others to do the same. You can then call others on favoring pet ideas over what's best for the project. People will get behind decisions they don't completely agree with if they see that an open mind, working in the interests of the project, is at work making those decisions.

The balance of power

If you work in a large organization, you should consider a certain political factor to balance the view of a project. I call this factor the power ratio. How is power on the project distributed across people who represent these three views? For example, if engineers outnumber business analysts by 3:1, the engineering view will tend to dominate decisions. The power ratio is simply the ratio of the number of people prone to a given view. To have a balanced perspective, the ratio should be 1:1:1 (engineering to business to customer). The natural power ratio is the raw count of people who have expertise in each view.

The more out of balance the ratio is, the larger the shift will be toward a given perspective.

But raw numbers of people don't define how much power they have. Napoleon's army had thousands of soldiers, but there was only one Napoleon. There may be 10 programmers and 1 marketer (10:1:0), but the marketer may have as much power over the project, given his role or seniority, as the others combined. This means a manager can compensate for any natural ratio by granting power to those who should have more influence on the project. And because the nature of a project changes over time, different perspectives should have more power at different times. Consider how you can delegate decisions (see Chapter 12) to find the right balance for the project at the right time.

Asking the right questions

The simplest way to frame planning work is to refine a set of questions that the planning work needs to answer. They should be pulled from the three perspectives with the intention of combining them into a single plan. Initially, they can be explored independently. Early project definition can be open ended. People can run with pet ideas or hunches for a while, they just need to be framed. Everyone should know that it will all come together into MRDs or vision documents, which will require many discussions that combine business, engineering, and customer thinking into a single plan.

The questions (often called project-planning questions) should be pulled from the three lists discussed earlier, based on their relevance to the project you're working on. If it's a new project (not a v2), then you'll need basic questions to define the fundamentals. If it's a small upgrade to an existing system, there may be fewer business and customer issues to consider. But no matter what the project is, do the exercise of running through the questions. It will force out assumptions and ideas that haven't been recognized and give everyone a starting point to discuss them.

This project-planning question list should be free of most perspective boundaries. Instead, you'll have a holistic point of view of the project, which can be divided, as needed, into engineering, business, or customer considerations. For example, the following list shows more complex versions of questions listed earlier:

- What are the three or four useful groupings we can use to discuss the different kinds of customers we have? (For example, for a word processor, it might be students, professionals, and home users. For an IT database, it might be sales, receptionists, and executives.) How do their needs and behaviors differ?

- What demographic information can help us understand who these customers are? (Age, income, type of company, profession, education, other products owned or web sites used, etc.)

- Which activities is each user group using our product for? How does this correspond to what they purchased the product for? How does this correspond to how we marketed the product? What problems do they have in using the product to satisfy their needs?

- Who are our potential new customers, and what features, scenarios, or types of products would we need to provide to make them customers? (What are the demographic profiles of these new customers?)

- Do we have the technology and expertise to create something that satisfies these needs and problems? (For each identified need, answers of yes, maybe, and no can often be sufficient, at least as a first pass.)

- Can we build the technology and obtain the expertise to create something that satisfies these needs and problems? (Yes, maybe, no.)

- Are there significant opportunities in a new product or line of products? Or are the needs tied directly to the current product or line of products?

- Are there viable business models for using our expertise and technology to solve these identified problems or needs? (Will profits outweigh costs on a predictable timeline?)

- What are the market timelines for the next release or prod-
  uct launch? Which windows of opportunity make the most
  sense to target?

- What are competitors in this marketplace doing? What do we
  think their strategies are, and how might we compete with
  them?

Answering the right questions

It can take hours or weeks to answer these questions,
depending on the depth and quality of the answers needed,
which is defined by the project manager or group leader. As a
rule of thumb, the more strategic the project is expected to be,
the more important the quality of this kind of definition and
planning research is. For tactical projects that are directed at
minor issues or short-term needs, less depth is needed. You
might need to consider only a handful of questions, and you
can base your answers largely on how you answered them for
the last project. But for important projects, this information will
be invaluable in any midproject adjustments or changes, not
only in the planning phase.

Some of these questions are best answered by business analyst
types, others are best answered by lead programmers or
usability engineers. Often, the best answers come from
discussions among these experts and the sharing of notes,
sources, and opinions. It can be expensive and time consuming
to do this work, but that's the nature of planning. Buying a
house or car, moving to a new country, or writing a book
requires significant planning efforts to make the process work
out well. If you do it right, it enables sharper and quicker
decision making throughout the rest of the project. (I'll talk
more about this in Chapter 14.)

What if there's no time?

In the worst case, even if no research exists and no time is
allocated for doing proper investigation, ask these questions
anyway. Simply raising good questions invites two positive
possibilities. First, intelligent guesses at the right question are
better than nothing. A well-asked question focuses energy on

the right issues. Even if you only have time for guessing, speculation on the right issues is more valuable than speculation on the wrong issues. Second, the absence of research into core questions can raise a red flag for leaders and management. The long-term health of an organization is dependent on its ability to make good plans, and even though investments (hiring someone or providing funding) might come too late to help this project, it can definitely help the next one.

Catalog of common bad ways to decide what to do

There are always more bad ways to do something than good ways, and project planning is no exception. As an additional tool toward sorting out the good from the bad, Table 3-1 shows some of the lousy approaches I've seen used. I offer these in the hopes that it will help you recognize when this is going on, and why these approaches are problematic.

Bad way	Example	Why it happens	The problem
We will do what we did last time.	"Version 3.0 will be like 2.0, only better!"	Often there isn't the desire or resources to go back and do new research into the business, technology, and customer issues.	The world may have changed since v2.0. Without examining how well 2.0 did against its goals, the plan may be a disaster.
We'll do what we forgot to finish last time.	"The feature cuts for Version 2.0 will be the heart of 3.0!"	Items that were cut are arguably well understood and partially complete, making for easy places to start.	Remaindered features are nonessential. Focusing a release on them may not be the best use of resources.
We'll do what our competitor is doing.	"Our goal is to match Product X feature for feature."	It's the simplest marketing strategy. It satisfies the paranoid, insecure, and lazy. No analysis is required.	There may be stupid reasons a competitor is doing something.

TABLE 3-1. *Common bad ways to decide what to do*

Bad way	Example	Why it happens	The problem
We will build whatever is hot and trendy.	"Version 5.0 will be Java based, mobile-device ready, and RSS 4.0 compliant."	Trends are trends because they are easy and fun to follow. People get excited about the trend, and it can lend easy excitement for boring or ill-defined projects.	Revolutions are rare. Technological progress is overestimated in the short term, underestimated in the long term. Customer problems should trump trendy fads.
If we build it they will come.	"Project X will be the best search engine/web editor/widget/mousetrap ever."	By distracting everyone to the building, rather than the reason for building, people can sometimes avoid real planning.	Does the world need a better mousetrap? People come if what is built is useful to them, not because a team decided to build something.

**TABLE 3-1.** *Common bad ways to decide what to do (continued)*

The process of planning

In whatever time is allotted for defining the project, create a simple process for answering the planning questions. If possible, each perspective (business, technology, and customer) should have one person with expertise in that area driving the research of information, generating ideas and proposals, and reviewing her thoughts with peers from other perspectives. The trick is to keep this small enough to be productive, but large enough in perspective to be broad and comprehensive. A group of 10 people will be much less effective at discussing issues and developing team chemistry than a group of 5 (see Chapter 9).

From experience, I'd rather deal with the bruised egos of those who are not main contributors to planning than include too many people and suffer a year or longer on a poorly planned and heavily compromised project. The mature people who you do not include will understand your reasons if you take the time to explain them, and the immature will have an opportunity for growth, or motivation to find employment better suited to their egos.

If you're using planning deliverables like the ones I briefly described earlier in this chapter, the goal of the planning group should be to create and publish those documents for the team.

The planning phase (see Figure 3-3) ends only when those documents (or more importantly, the decisions they contain) are completed.
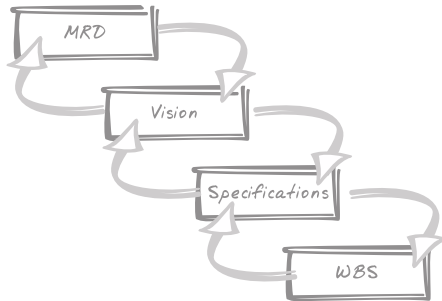

FIGURE 3-3. *The feedback between levels of planning.*

A draft version of each planning document should be prepared early enough to incorporate feedback from the team before a final version is due. As shown in Figure 3-3, there may even be a simple feedback loop between deliverables. When the draft of an MRD is created, someone may be able to start working on the vision document, raising new questions for the MRD that improve it before it's finalized. This pattern repeats through all of the planning work. So, even if there are hard deadlines for finishing planning docs, some overlap in time is healthy and improves the quality of the process. As shown in Figure 3-4, when a project is in mid-game (implementation), it becomes harder, though not impossible, for this kind of feedback to propagate back up the planning structure. (Alternatively, Figure 3-4 can be thought to represent a contracted team that has influence over specs and work assignments only.)

The daily work

As far as the daily work of planning is concerned, there's no magic way to go about doing these kinds of collaborative tasks. People are people, and it's impossible to skip past the time it takes to get individuals who are initially of different minds to come together, learn from each other, and make the arguments or compromises necessary to move things forward. There will be meetings and discussions, and probably the creation of email distribution lists or web sites, but no secret recipe of these things
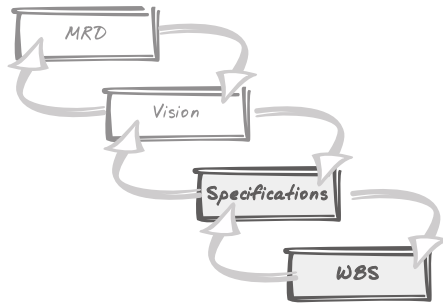
FIGURE 3-4. *As time goes by, it should become harder (though not impossible) for changes to propagate back up the planning structure.*

makes a big difference. Be as simple and direct as possible. The leader sets the tone by starting the conversations, asking the important questions, and making sure the right people are in the room at the right time. However, there are three things to keep in mind:

- **The most important part of the process is the roles that people are expected to play.** Who has requirements authority? Design? If many people are involved, how will decisions be made? How will ties be broken? With these sorts of relationship issues defined early on, many problems can be avoided or, more probably, handled with composure and timeliness. (See Chapter 10 for more on relationships and defining roles.)

- **Everyone should know what the intermediary points are.** What are the milestones between day one of the planning effort and the day when the project definition is supposed to be complete? The timeline for deliverables—such as reports, presentations, review meetings, or vision documents—should be listed early and ownership defined for each of them. When exactly does "planning" end and design or implementation begin? There should be good, published answers.

- **There should be frequent meetings where each perspective is discussed.** Reports of new information or thoughts should be presented, and new questions or conclusions should be raised. Experts from elsewhere in the organization or the team should be pulled into these meetings when they have expertise that can help, or if their opinions would be of value to the group.

The project manager is often responsible for consolidating each meeting and discussion down into key points and making sure conclusions reached are written in stone in a place the group can easily reference. Questions or issues raised should be assigned appropriately and then discussed at the next meeting.

Customer research and its abuses

There are many different ways to abuse information about customers. Simply claiming that customers are important doesn't signify much. It takes no work to say "We care about customers" or "Customer satisfaction is important" because rarely does anyone ask how those beliefs map to organizational behavior. Even though in the last decade much progress has been made in refining methods for researching and understanding customers, most of it has not penetrated through to management- or engineering-centric organizations. It's still uncommon for project teams to have an expert in customer research, interface design, or usability available to decision makers.

By far, the most prevalent mistake I've seen in customer research is over-reliance on a single research method as the source for decision making. The fundamental problem with all research, scientific or otherwise, is that a given study assesses only one point of view on an issue (we'll discuss this again in Chapter 8). Each method for examining something is good at measuring certain attributes and horrible at measuring others (see Table 3-2). Just as you would never use a speedometer to measure your weight, or your bank account to measure your blood pressure (though they may be related), there are some things that surveys and focus groups are good for and others that they are not.

Method	What is it?	Pros	Cons
Focus group	A group of potential customers are brought together to view prototypes and give opinions in a facilitated discussion.	Can get many opinions at once. Allows for extended suggestions and open dialog.	Discussions are difficult to analyze and easy to misinterpret. Poorly trained facilitators create deceptive data.[a]
Survey	A series of questions are given to potential customers.	Low-cost way to get information from large numbers of people. Good for very broad trends.	Information reliability is low.[b] Authoring surveys without biasing answers is difficult. Easy to misinterpret data.
Site visits	Experts or team members go to the customers' work sites and observe them doing their work.	Observe the true customer experience. Often this is the most memorable and powerful experience for the team.	The data is most valuable to those who did the visit: it's hard to transfer to others or to use quantitatively.
Usability study	Selected customers use a design in a controlled environment. Measurements are taken for how many scenarios they can complete, in how much time, and with how many errors.	Quantifies how easy it is to use anything. Provides evidence for specific problems. Most valuable when done early, before project begins.	Little direct value for business or technological questions. Can be wasted effort if done late or if engineering team doesn't watch often.
Market research	The market of the product is examined to see how many customers there are, what the competing products cost, and what the revenue projections are.	Only way to capture the business view of a market or industry.	Doesn't explain why products are successful, and it focuses on trends and spending, rather than people and their behaviors.

TABLE 3-2. *Common customer research methods*

[a] Focus groups tend to bias people toward being helpful. They don't want to insult their hosts, and they will often be more positive and generous in considering ideas than they would otherwise.

[b] Consider how diligent you were in answering questions in the last survey you took. If you never take surveys, ask yourself about the kinds of people likely to spend lots of time taking surveys.

Experts at customer research do two things: they choose the method based on the questions the project team needs to answer, and they make use of multiple methods to counteract the limitations and biases of individual approaches. Table 3-2 outlines some of the major research methods and their high-level tradeoffs.

As a program manager at Microsoft, on the best project teams I worked on, I had access to many of these sources of information. I'd often have to request answers to specific questions that went beyond what I was provided with, but there were dedicated experts in the organization who would generally do this for me. On other teams with less support, I'd have to go and make do on my own (typically with less success because I had many other things to do as well, and I wasn't as proficient at getting results as a full-time expert would be).

Even with no resources or budget, a few hours of work toward answering those planning questions can sometimes provide useful results. Focused energy spent on smart web searches and library inquiries (real librarians are often more powerful tools than web sites) can reveal sources that are infinitely more useful than nothing. Over time, the skills and experience in doing this kind of research will grow, and it can take less time in the future. More importantly, having done some of this kind of work on your own will put you in a more informed position to hire someone to do it for you, should the budget or headcount finally be offered to you.

With any source of data, skepticism and healthy scrutiny help refine and improve its value. Assumptions should be questioned, and known biases of different kinds of research should be called out at the same time the research is presented in a discussion. This doesn't mean that that data should be thrown out simply because there isn't enough of it or because there are valid questions about it. Instead, the team should try to look past the flaws to find the valuable parts that can be used to influence discussions and give a better perspective on what the reality of the customer's experience is like. No form of data is perfect: there are always biases, caveats, margins of error, and hidden details. The project manager has to be able to see past the biases and make intelligent use of what's available to make better decisions.

Bringing it all together: requirements

Planning creates large amounts of interesting information (asking many questions tends to make that happen). The challenge becomes how to simplify the information and convert it into a form useful for defining a plan of action. At a high level, a vision document is where all of the perspectives, research, and strategy are synthesized together. We'll talk more about that special document in the next chapter. But at a medium to low level, the simplest tool is the use of requirements. Vision documents often contain requirements information, but depending on whether specifications or other, more focused documents will be written, detailed requirements might be contained elsewhere.

Many projects use the requirements as the way to define the direction of a project. A requirement by definition is anything the team (and client) agrees will be satisfied when the project is completed. In the simplest sense, ordering a pepperoni pizza is an act of requirements definition. You are telling the pizza chef specifically what you want. He may ask you questions to clarify the requirement ("Do you want a soda with that?"), or he may negotiate the details of the requirement ("We're out of pepperoni, will you accept salami instead?"). In the more complex case of software development, good requirements are difficult to obtain. There are many different ways to interpret abstract ideas ("make it run fast" or "make it crash less often"), and the process of eliciting requirements can be difficult.

There are established methods for developing and documenting requirements, and I recommend familiarizing yourself with them (see the excellent *Exploring Requirements: Quality Before Design*, by Donald Gause and Gerald Weinberg, Dorset House, 1989). Depending on what authority you have over the requirements process, there are different ways to go about doing it so that you'll obtain good results. The details of these methods and how to apply them are out of the scope of this book. However, I can offer you one simple method that I think is easy to use and generally very effective: the problem statements method.

Problem statements are one- or two-sentence descriptions of specific end user or customer issues. They should be derived from any of the research that was performed or from specific customer requests. They should be written in a format that identifies a problem or need from the customer perspective (as opposed to the engineering or business perspective). This will ensure that the point of view of the impact on the customer is maintained and not unintentionally distorted by other perspectives. Problem statements also help avoid some of the common requirements mistakes that teams make (we'll cover them briefly in Chapter 5).

As an example, here's what a list of problem statements for an intranet web site might look like:

- It is hard to find commonly needed items on the home page.

- Pages with department information are very slow to load and users have to wait.

- The database query page crashes when working with large tables, and users have to start over with their work.

- The site does not provide automated access to HR services, which are time consuming to do manually.

- Search results are difficult to scan with the current layout.

- The registration page doesn't warn about required fields, and it's too easy to make mistakes.

- The status page doesn't include information about email, and users cannot find out why their email isn't working.

- There is no way to save preferences or options for how the home page is displayed.

Note that these are not bug reports. These issues may have never been identified as things the web site needed to do. Problem statements should be broader than and different in perspective from bugs because the idea is to capture what's missing from the customer's perspective, instead of only what is broken from a technical perspective.

Each of these one-sentence statements can be followed by supporting evidence or examples (say, screenshots from the web site or product that provides context for the issue, or references to the usability study or other research that surfaced the problem) to help tell the story and explain why and how the issue occurs (or why the omission of a kind of functionality is significant). But this supporting evidence should not mix with the problem statement itself, or with engineering plans or business objectives. For sanity, these customer problem statements should remain purely about customers and their needs.

Problems become scenarios

Because problem statements represent the current state of the world, a project needs something else to express how the world will be when the work is completed. For this purpose, problem statements need to be converted into what are called feature statements or scenarios. There are many different ways to do this; use-cases are one popular method (see Alistair Cockburn's *Writing Effective Use Cases*, Addison Wesley, 2000), but there are many others.

Each scenario is a short description of something a customer will be able to do as a result of the project, or the tasks they will no longer have to do because the project automates those tasks for them. The idea is to describe these things from the customer or user's perspective and to avoid any description of how these benefits will be achieved—that comes later. For now, what's important is that the team is able to articulate and discuss which scenarios have the most value. Considerations for the business value of solving each scenario or their technological feasibility should be reflected in how the scenarios are prioritized.

The feature statements themselves should become the way to most easily represent what's been learned about customers and what the project will be focused on providing for them. Based on the previous list of customer issues, here is what some feature statements might look like:

Possible features of Project X:

- Commonly used items will be easy to locate on the home page.

- Search results will be easy for most users to read quickly.

- The site will provide easy, automated access to HR services.

- The registration page will make it easy to enter information without mistakes.

- Department information pages will be at least as fast as the home page itself.

- The database query interface will be as reliable as other parts of the system.

- Users will be able to learn about email server status issues in a simple and convenient way.

- Users will have a convenient way for the system to remember their preferences.

Feature statements should never describe a specific solution or design, but should instead explain the solution's impact on the customer. (This is easier said than done. Most engineers and creative people love to solve problems. If you describe a problem, they'll want to jump right into solving it instead of spending time trying to elaborate on or refine the problem. It's common to require a temporary ban on solution proposals during discussions of problem lists and scenarios. Simply ask people to write down their ideas during the meeting, and then discuss them later. Make exceptions for ideas that completely eliminate problems from the lists or identify them as trivial.)

By postponing deep discussion about design alternatives, the team can focus on clarifying the real goals of the project. These feature statements can be ordered roughly by importance, helping to define the shape of what the project will be. If this is managed well, when the time comes to explore and define designs, it will go much faster because everyone will be working toward the same results (instead of being distracted by technologies or their favorite ideas for solutions). Because so much is riding on these short descriptions, they need to be

written carefully and with consideration for how long they'll be used by the project team. It often takes several passes and reviews to get them right, but once complete, they'll rarely need to be redefined over the course of a project.

Integrating business and technology requirements

With a list of potential features that grew out of user research, additional features to satisfy business or technology considerations can be added. But a primary question must be answered: what is the purpose of these additional requests if they do not contribute toward helping customers? Before adding new features, the existing list should be reviewed to see which ones already represent these business and technology considerations. This forces all discussion to be centered on customer impact and benefit, without prohibiting specific technology or business considerations.

It's entirely possible that business requirements to exploit certain market opportunities are represented by one or more features already on the list. Technology requirements should also be tied back to benefits that those engineering efforts will create for customers. Any business or technology requirements that don't connect with customer benefits (short or long term) should be scrutinized. These noncustomer-centric features should be carefully defined to make sure they do not negatively impact the customer's experience.

And even if marketing demands an addition that has no ties to improving the customer experience, everyone will know that this is the case and respond accordingly. Sometimes, it's necessary to add a feature to help sell a product, despite its dubious end-user value, or to satisfy a demanding client or executive. But by organizing the planning process first around customer research, problem statements, and resulting features, everyone will have to make arguments within that context. Warning bells should go off if the majority of features in a release have no direct connection to the customer. If they can be reviewed by their relationship to a customer-centric list, random or self-serving requests will stand out to everyone in

the room and demand additional debate and discussion. This gives the project manager every opportunity to define a level playing field of features that has the best interests of both the customer and the organization in mind.

Summary

- Different projects demand different approaches to planning.

- How planning is done is often determined by who has what authority. Requirements, design, and budget are the three kinds of project authority that impact planning.

- There are some common deliverables for planning projects: marketing requirements documents (MRDs), vision/scope documents, specifications, and work breakdown structures (WBSs).

- The most powerful way to plan a project involves use of three equal perspectives: business, technology, and customer. The customer perspective is often the most misunderstood and misused.

- Asking questions forces good thinking and directs planning energy effectively.

- The process of defining requirements is difficult, but there are good references for how to do it well.

- Problem statements and scenarios are a simple way to define and communicate requirements. They are easily converted into design ideas without losing clarity about what's important and what isn't.

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